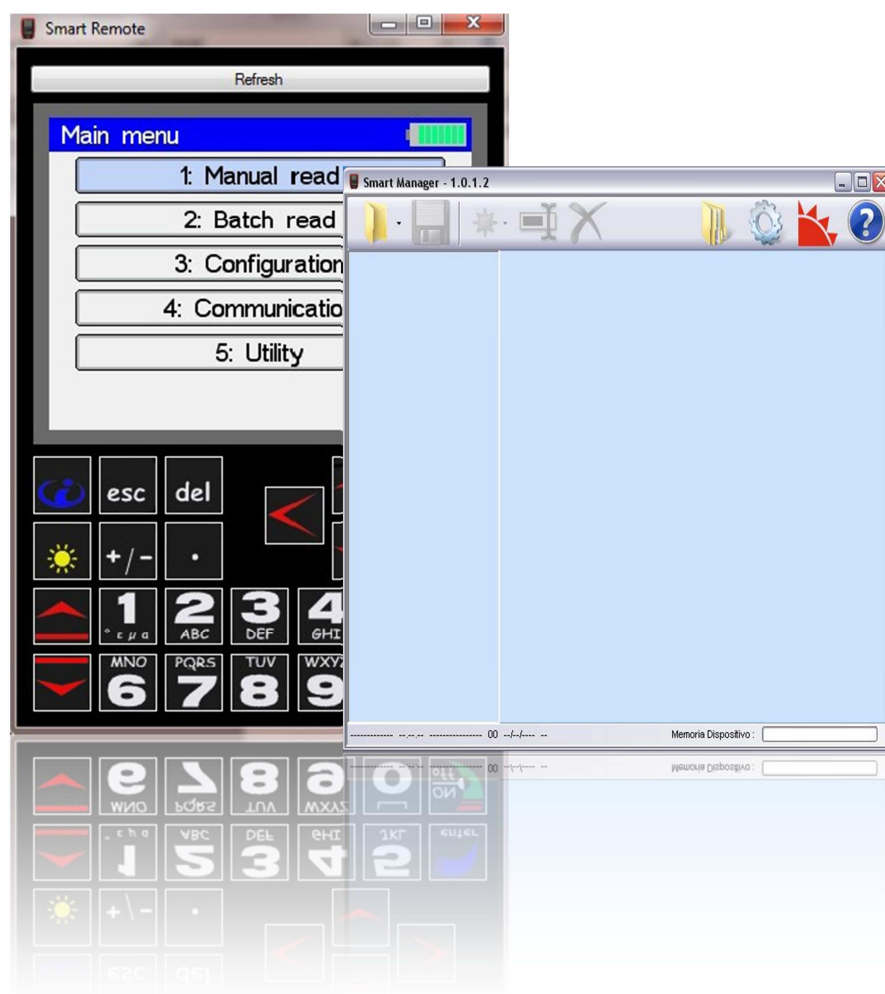


Smart Manager



User Manual

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INTRODUCTION

SmartManager Suite is a suite of programs designed to work together and it is composed of following modules:

SmartManager

SmartMonitor

SmartExport

SmartRemote

SmartManager is a software designed to run under Windows OS to manage all aspects of Archimede, Leonardo, new Leonardo and Galileo portable Dataloggers (DLs).



To use SmartManager you should be familiar with the use of DLs. Read the DLs Manuals before the use.

SmartManager synchronizes the data stored on your PC with data present in the DL and manages creation and changes of data.

SmartMonitor appears as a small icon on the tray bar and monitors the USB ports for the connection of a DL. It has the function to automatically launch SmartManager.



If SmartManager does not start automatically when you connect a DL, check your tray icon bar to ensure SmartMonitor is running.



SmartExport is designed to manage in a friendly manner the reading's export in Microsoft Excel or text format so that data can be easily processed with other tools.



See the manual for details.

SmartRemote has been designed to support remote diagnosis and to assist customers in basic operations.

SMART MANAGER

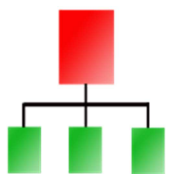
The main goal of SmartManager is to keep data on your PC and the ones on the DLs, synchronized.

The DL memory is organized as a storage disk. The disk contains folders and files: each folder represents a "SITE" and contains all files related to it. Each kind of file on a DL is identified by an icon and associated to specific actions.

Also if the memory's maximum capacity is remarkable, DL export and synchronization speed with the PC depends on the internal data quantity.



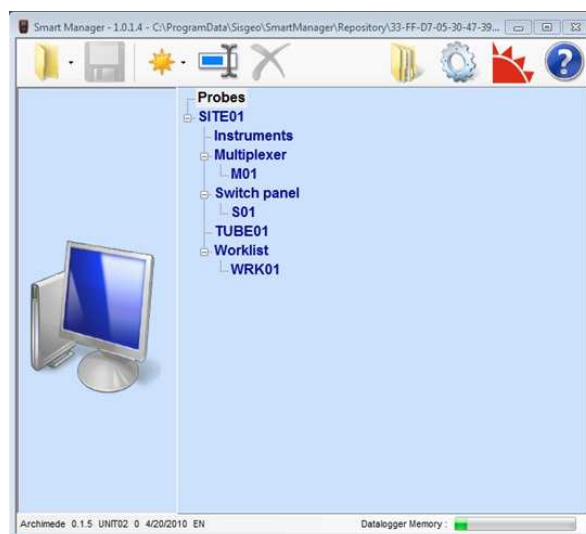
We advise not to charge exceedingly DL's memory and to use it ONLY to save the DL's files

Icon	Extension	Description
	.SGR / .SGT	Readings of all site instruments SGR file are all readings associated to a site excluded inclinometer tube test readings. SGT files are inclinometer tube test readings. Usually they come in form of TTT-NN.SGT where TTT is the name of tube and NN is the test sequence number (01, 02, etc.).
	.SGP	Inclinometer Tube Configuration.
	.SGI	Instruments and Probes Configuration.
	.SGW	Worklist Configuration.
	.SGM	Multiplexer Configuration (also for digital inclinometers chains).

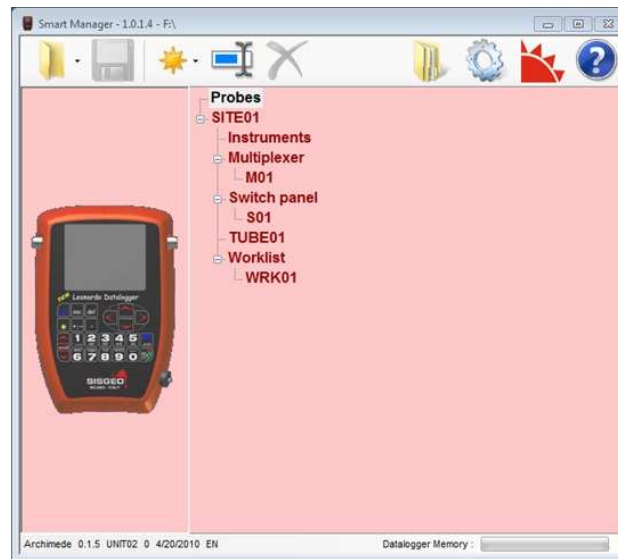
	.SGS	Switch Panel Configuration.
	.DFU	Firmware.
		Program Icon.

SmartManager has two operation's mode: *Stand-alone mode* and *On line mode*.

Stand-alone mode does not require a DL connected to the PC:



On line mode requires a DL connected to the PC.



To connect DLs you must use an USB cable; see “Startup operation” paragraph for details.

Once DLs are connected to the PC, they are detected as an external USB Storage Disk.

SmartManager software automatically detects connections of DLs and starts the synchronization process.

SYSTEM REQUIREMENTS

Hardware

<i>Description</i>	<i>Minimum</i>	<i>Recommended</i>
Microprocessor	Pentium 1 GHz	Pentium 2 GHz
Memory	512 MB	2 GB
Hard Disk Free Space	50 MB	500 MB
Monitor	800x600 16bit color	1024x768 24bit color
1 Free USB Port		

Software

<i>Description</i>	<i>Supported</i>
Operating System	XP/ Vista x86 / Seven x86 x64
.NET (Included in setup .NET 4.0)	4.0 or newer

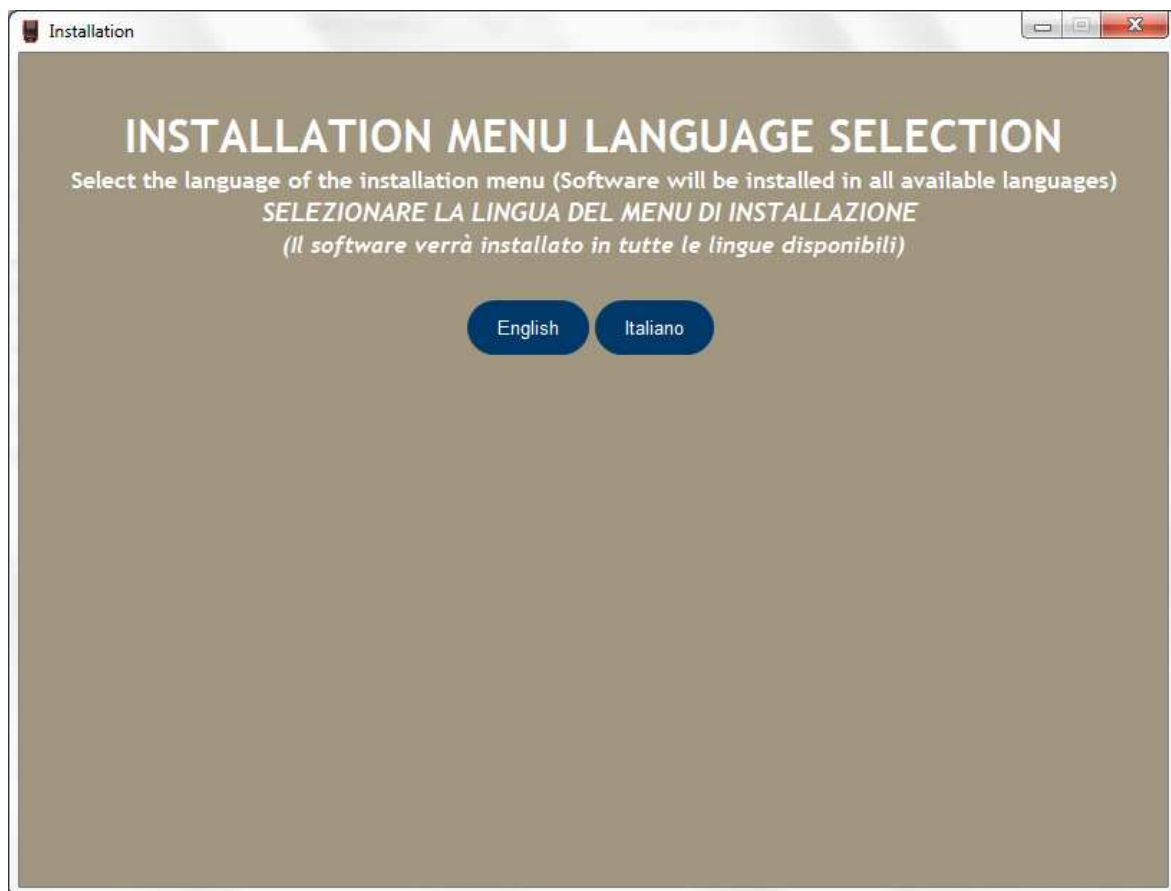
INSTALLATION

In order to install the software, insert the CD supplied with DL. The installation process should start automatically, otherwise please execute **autostart.exe** in CD root.



The installation process and the first run of the program requires administrative privileges.

The following window will appear for the selection of the installation language:

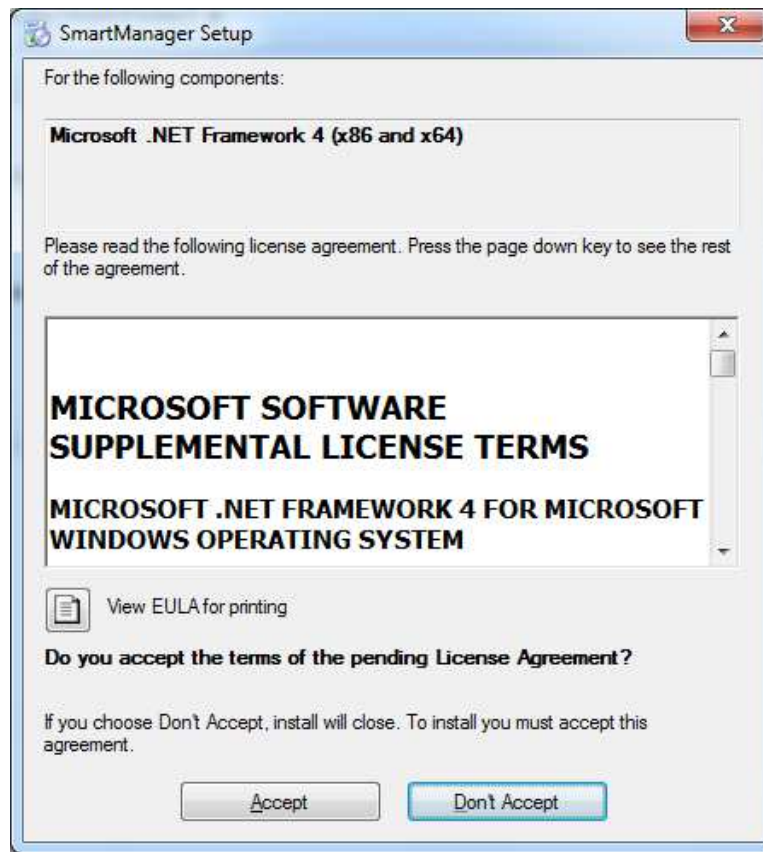


Following a new selection window will be shown for the selection of the software to install:

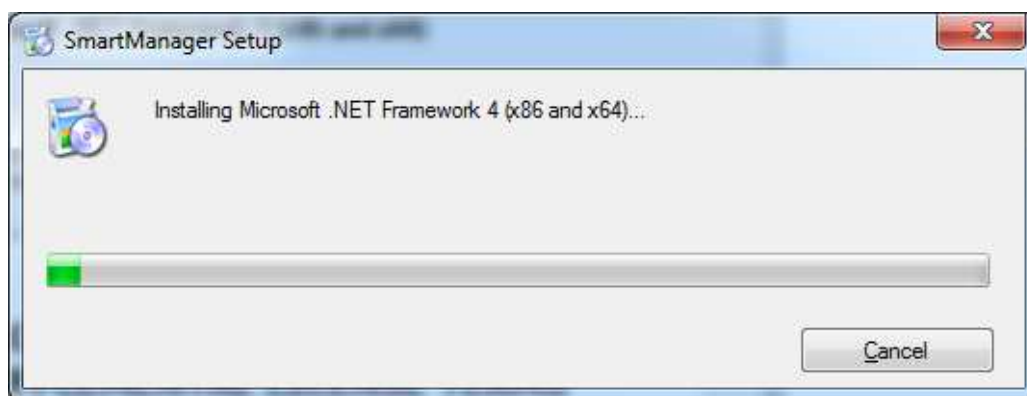


Once **"Start program installation"** is selected the installation will start.

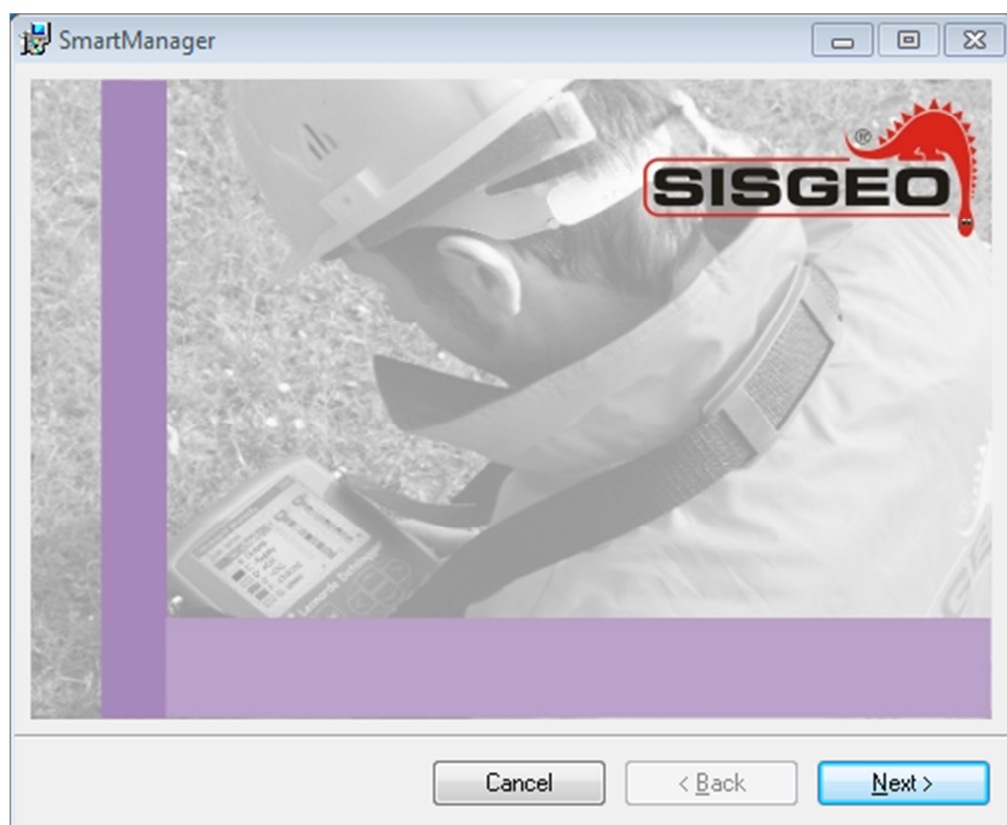
The software is based on .NET 4.0 technology. If your PC is not equipped with this software, the setup process will ask you to proceed with the installation of .NET 4.0:



After accepting the user license the setup process will start.

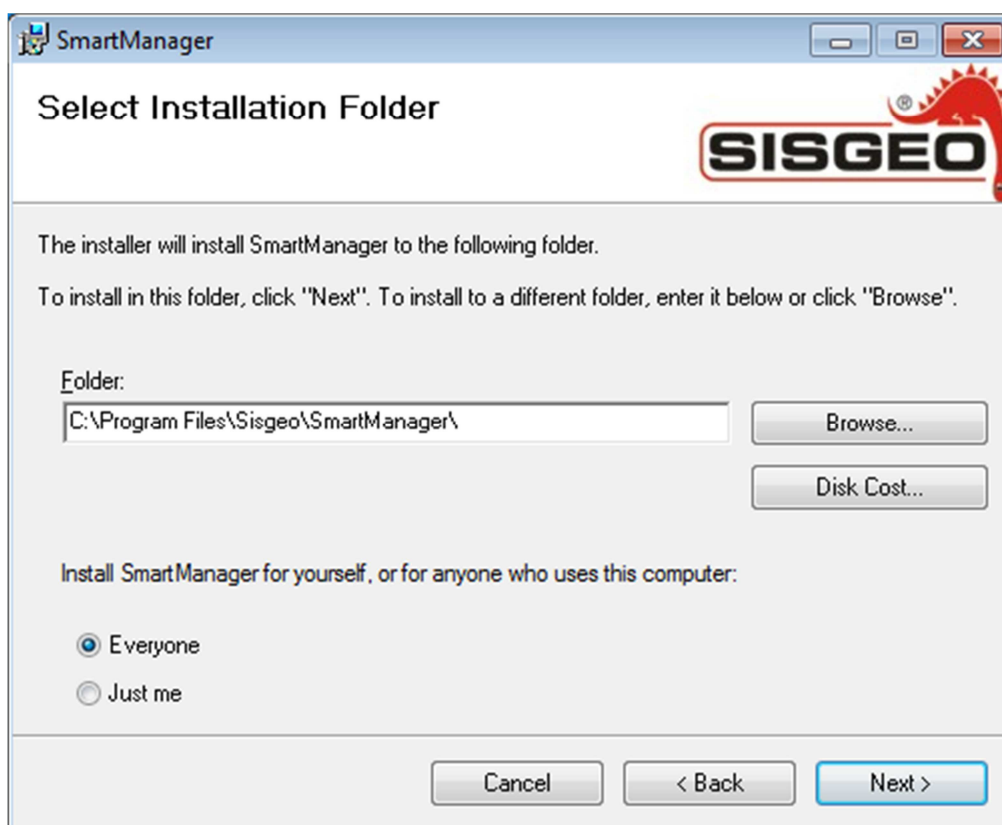


If your PC is already equipped with .NET 4.0 the SmartManager Suite setup process will start immediately.

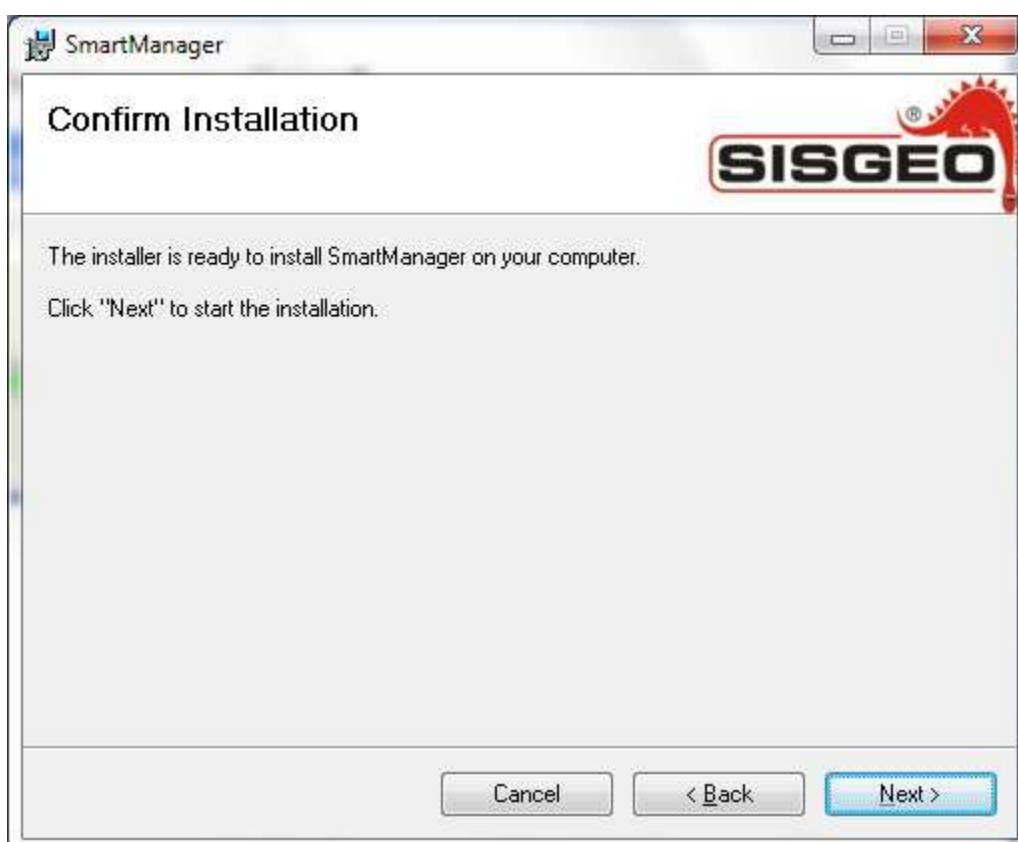


Press "**Next>**" to continue

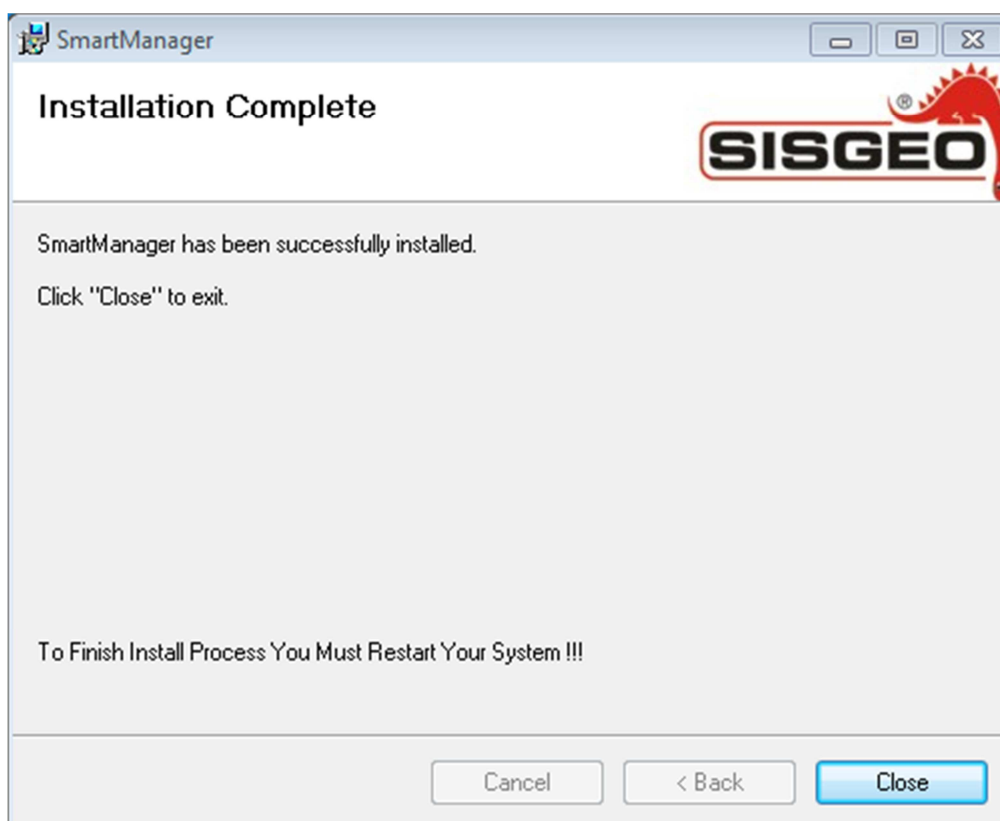
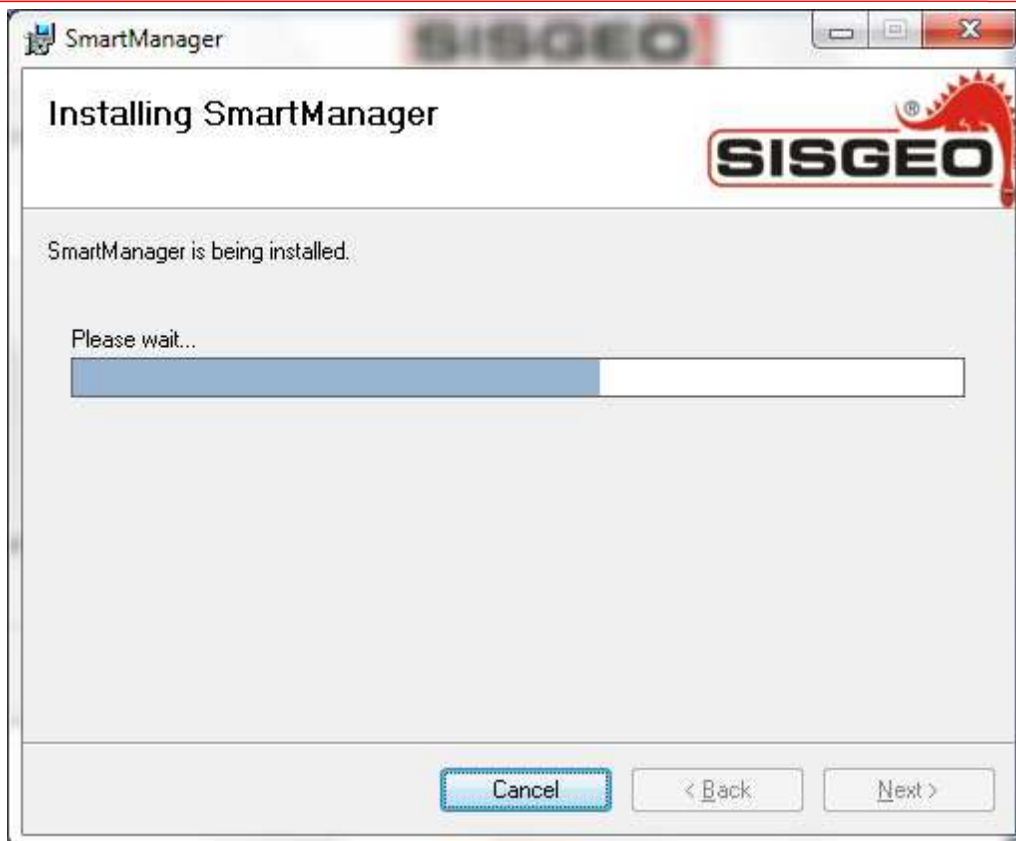




Select the desired folder and press- **"Next>"**



Press **"Next>"** to continue



Press "**Close**" to finish.

After the installation you have to manually close the installer window.



In order to complete the installation you must restart your computer at the end of installation. For each account, the first run of the software could take some minutes: please wait until the program is started.



It is possible that your Firewall would show a message asking to allow the program to access Internet when is started : this is due to the automatic update check of the SmartManager program. If you wish the program checks for updates, you must allow the program to access Internet.

DRIVER FOR SMART REMOTE

To use **SmartRemote** software a driver installation is requested.



To install the driver is necessary to have administrative privileges

This driver is contained in the supplied installation CD.

Please, insert CD and double click on autostart.exe. After language selection the following windows will appear:

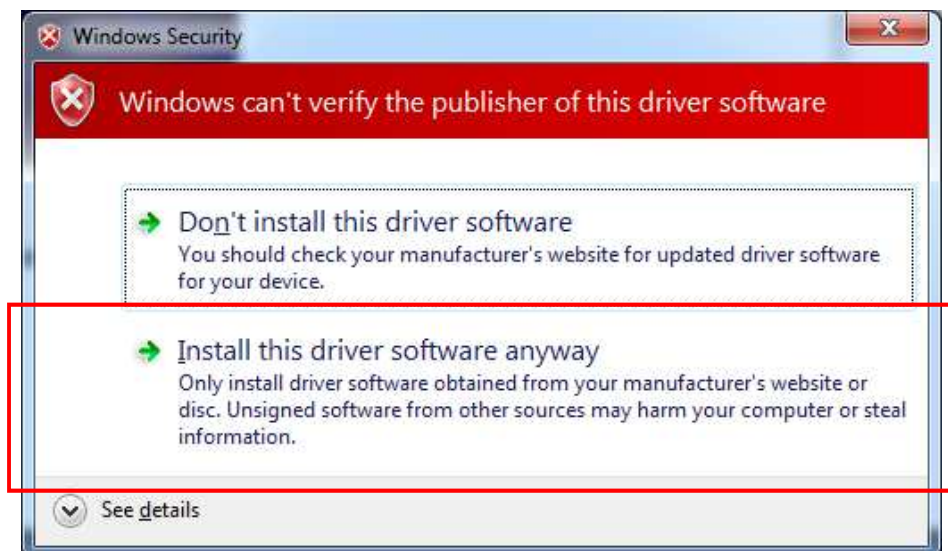


According to your Operative System, select “**Remote driver**” item.

After choosing the correct installation for your O.S., the following window will be displayed:

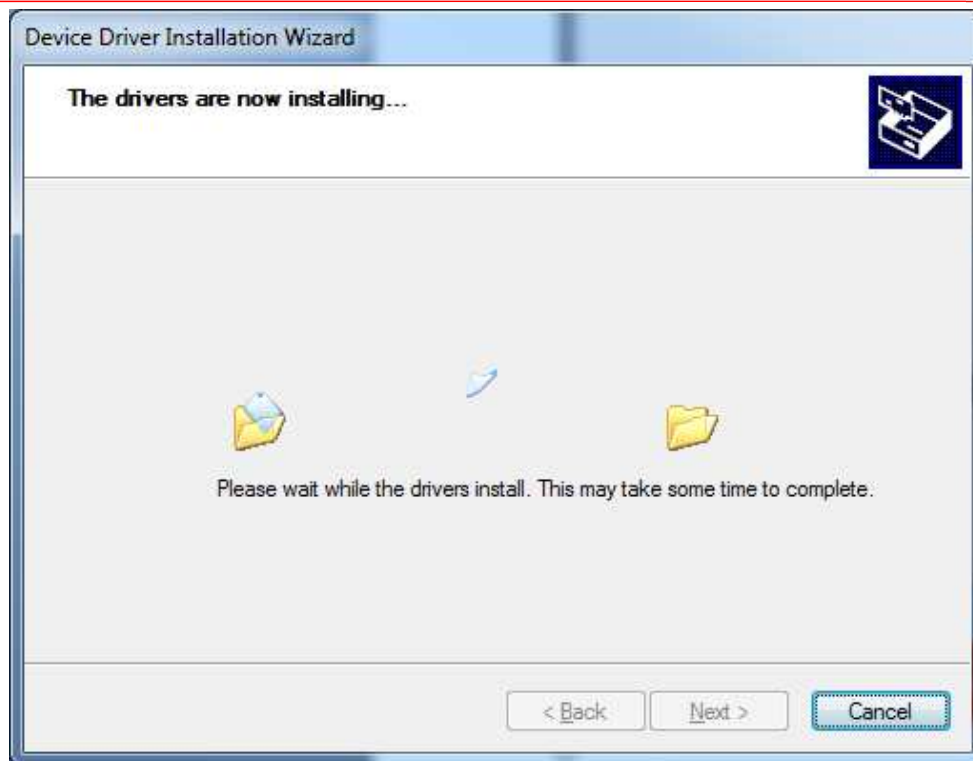


Click “**Next**” to proceed. Will be displayed the following window:

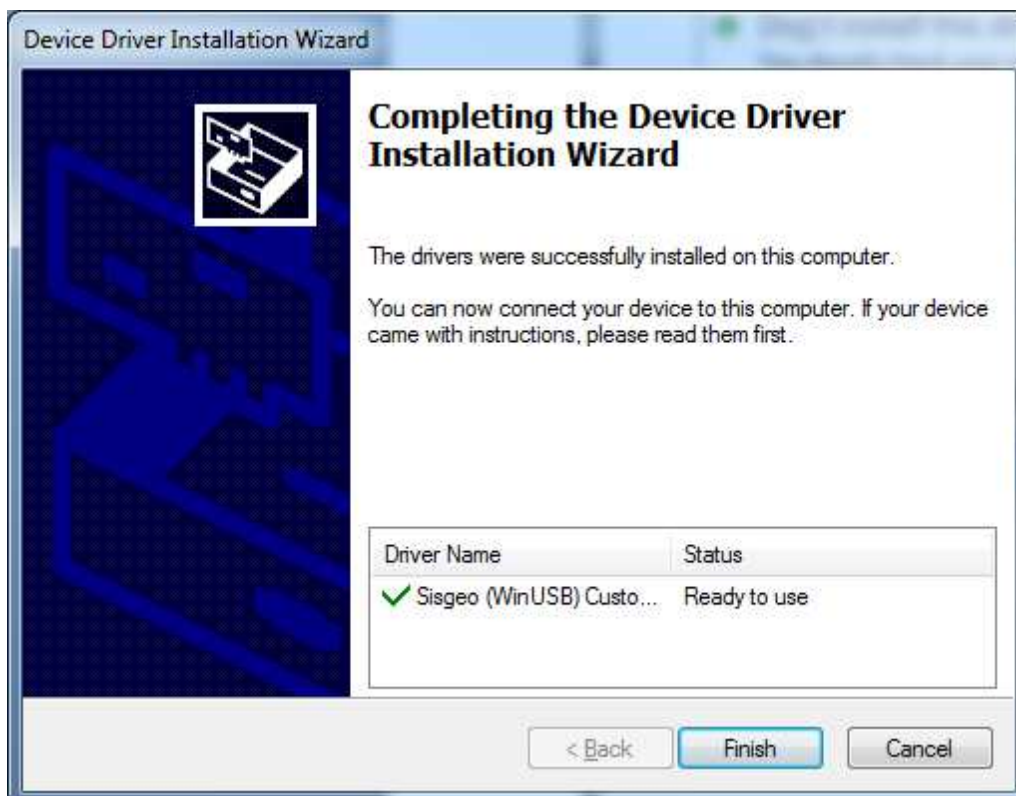


Select “**Install this driver software anyway**” to proceed.

Software’s installation will be started and the following window will show progress:



Once ended the installation, will be displayed the following window:



DRIVER FOR DATALOGGER FIRMWARE UPGRADE (DFUs)

To install the driver is necessary to have administrative privileges

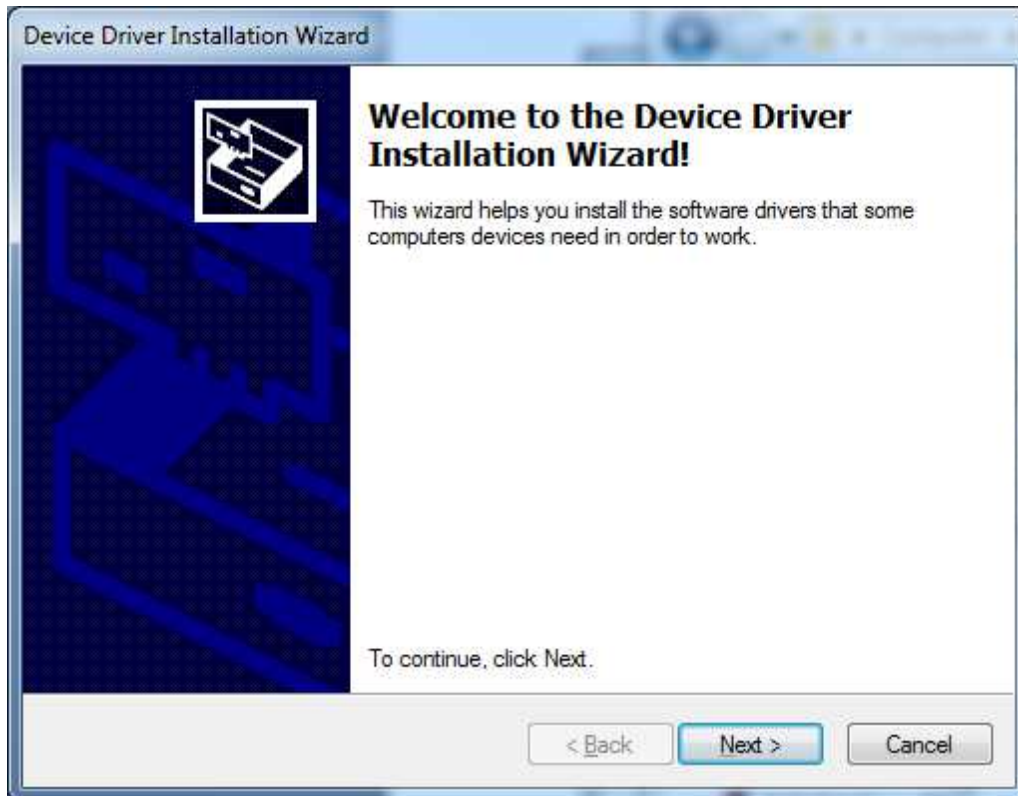
This driver is contained in the supplied installation CD.

Please, insert CD and double click on autostart.exe. After language selection the following windows will appear:



According to your Operative System, select “**Firmware Upgrade Driver**” item.

After choosing the correct installation for your O.S., the following window will be displayed:

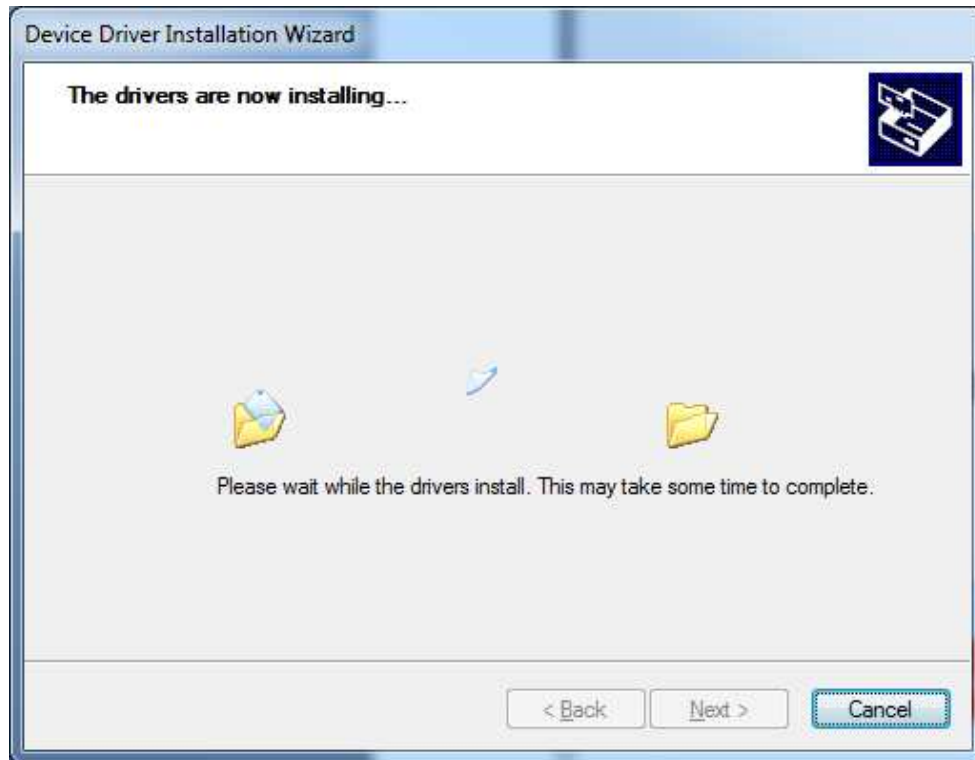


Click “Next” to proceed. Will be displayed the following window:

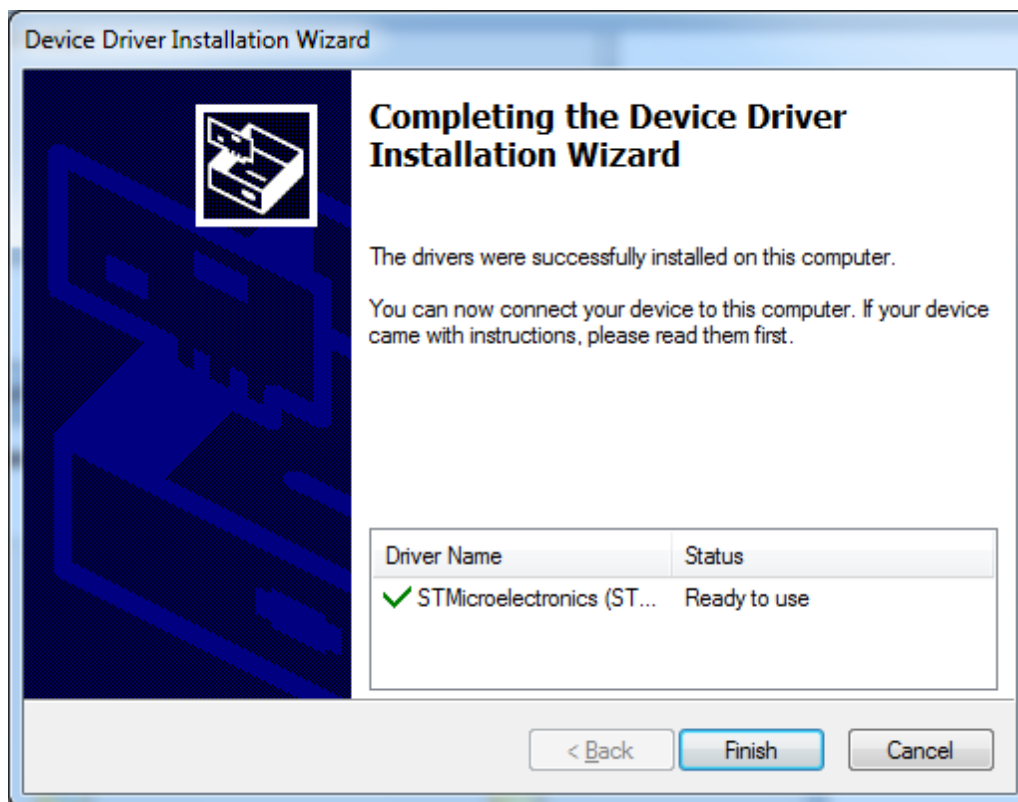


Select “Install the software from the driver” to proceed.

Software's installation will be started and the following window will show the progress:

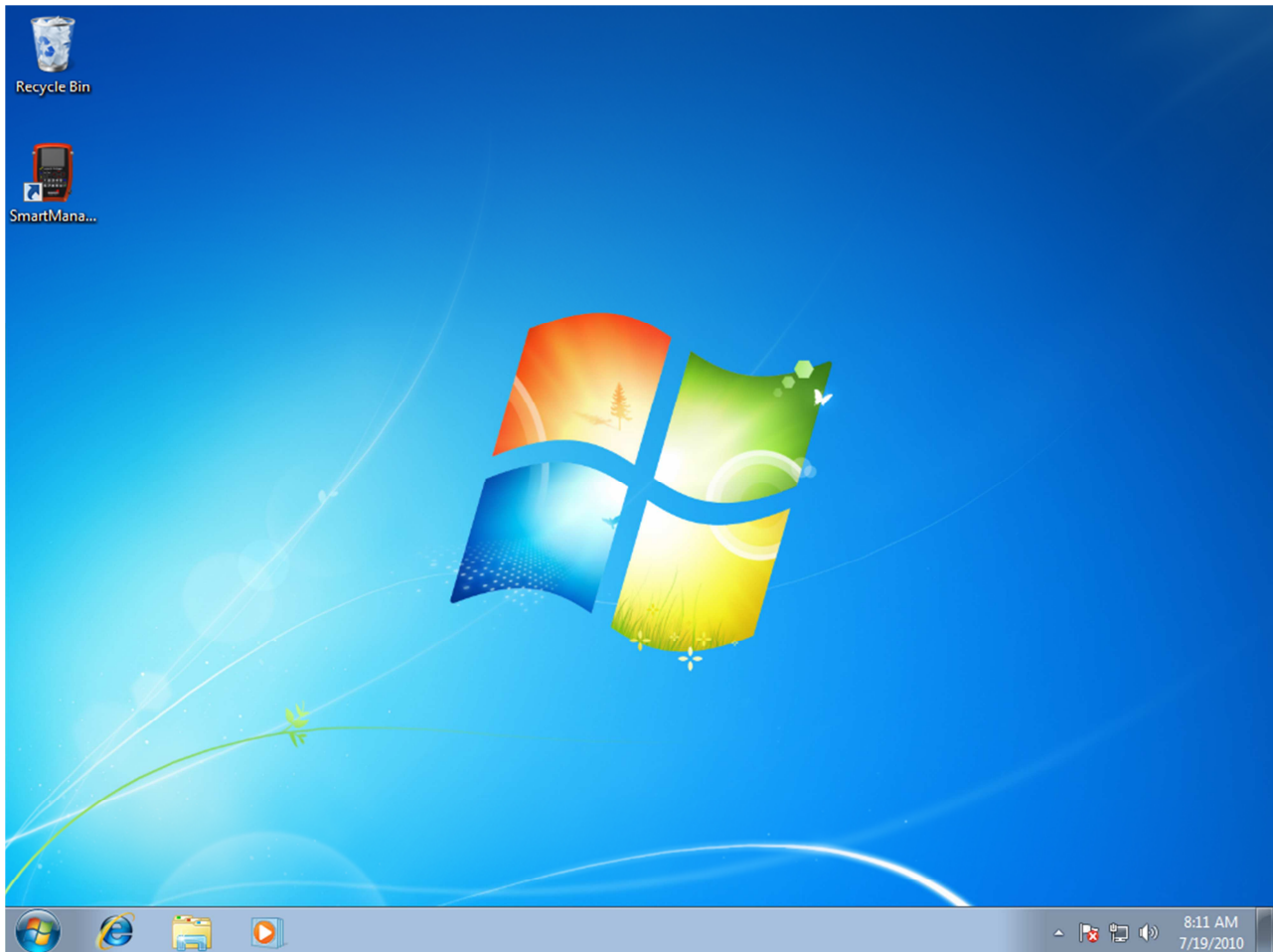


Once ended, will be displayed the following window:



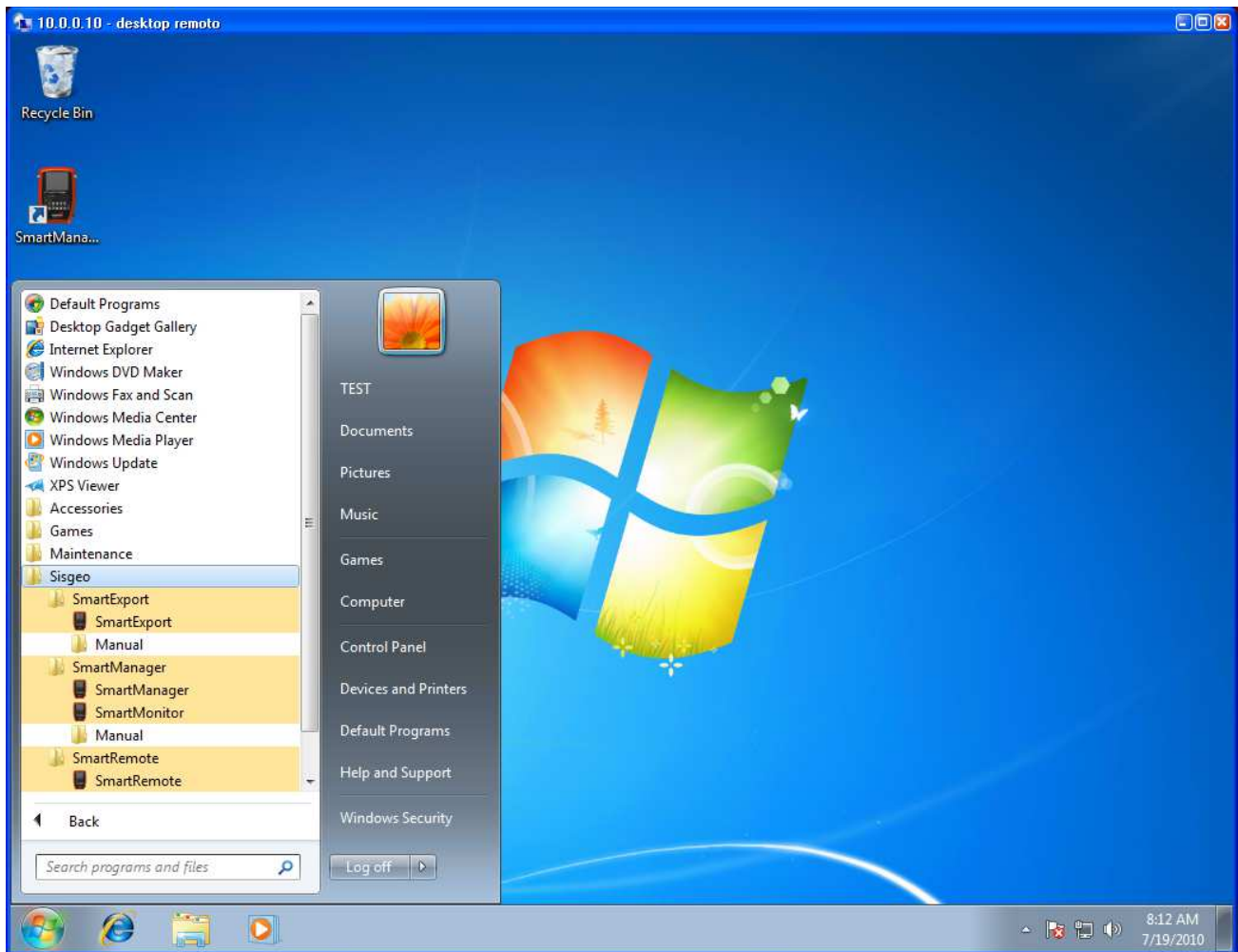
STARTING THE PROGRAM

SmartManager starts automatically when you connect a DL to an USB port of your PC. If the program does not start automatically, check if SmartMonitor is shown in your tray bar. You can start the program manually by clicking the desktop icon:



At first startup the software could take a while to open. This delay is consequent to the software's configuration procedure. Following executions will not have this delay. Wait for the program's start and don't do anything.

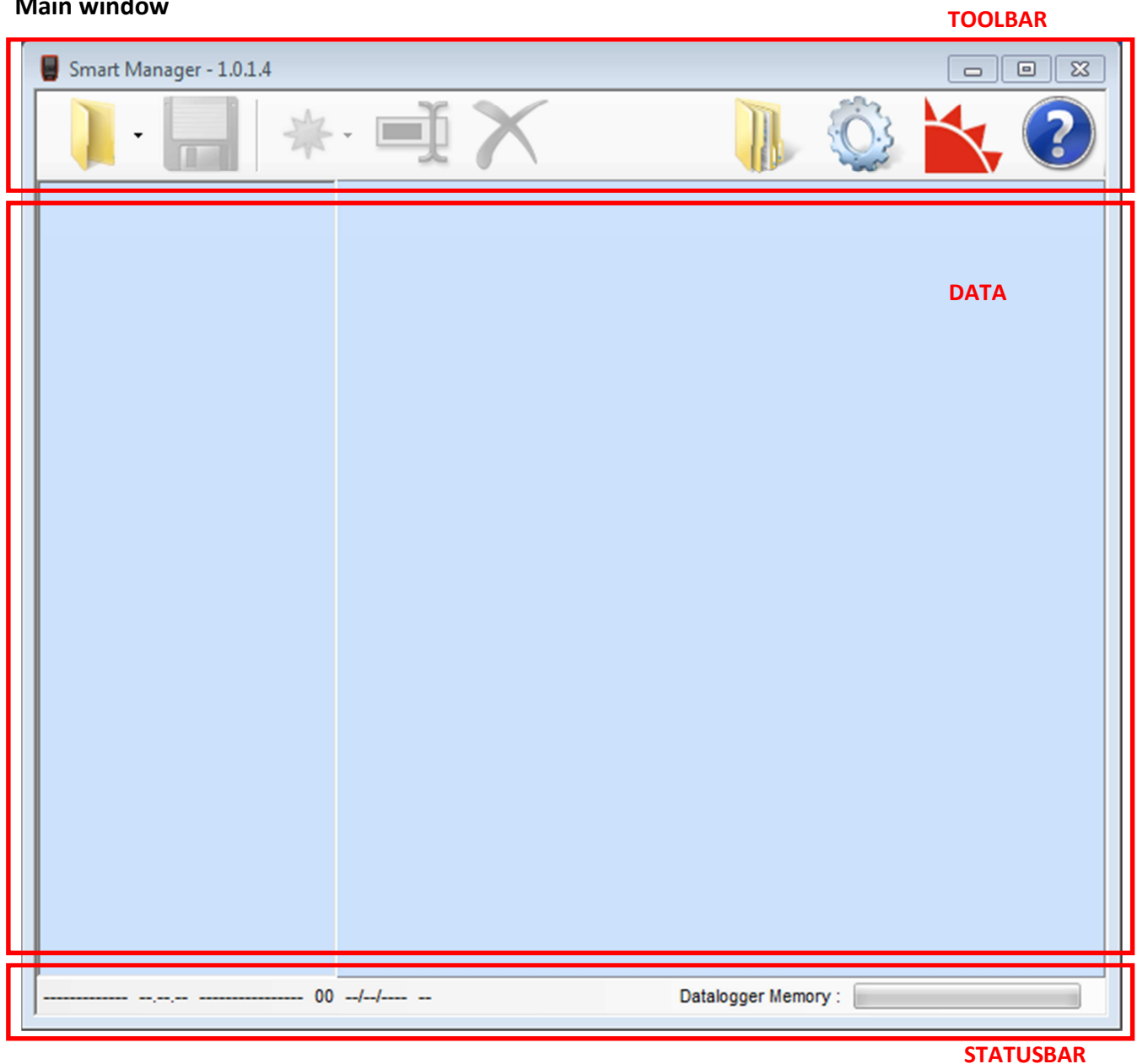
Or by selecting the corresponding icon in the start menu:



PROGRAM DESCRIPTION

SmartManager has two windows: Main and Repository.

Main window

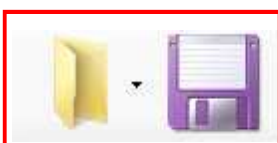


Main window is composed of three parts: Toolbar, Data and Status-bar.

Toolbar

Located at the top of the main window is divided in three sections: File, Action and Tools.

FILE SECTION



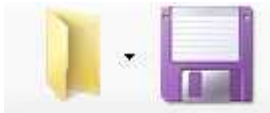
ACTION SECTION



TOOL SECTION



In the File section you can find *Open* and *Save* buttons.



The *Open* button lets you open a different location from the one currently selected. For example this button can be used when more DLs are connected and you want to switch from one to another. This button keeps trace of the last opened DLs.



The *Save* button stores any modification done on the DLs or on PC data .

This button is not active for actions that act directly on the disk (e.g. when you duplicate or delete a site, when you rename or delete a device).

In the Action section you can find three buttons: *New*, *Edit* and *Delete*.



The *New* button can be expanded showing all new action allowed for the selected object (from the DL or from the PC data).



The *Edit* button modifies the selected object (from the DL or from PC data)



The *Delete* button removes the selected object (from the DL or from PC Data).

Some of these button can be disabled (they can appear grayed in this case) depending on the selected object.

In the Tools section you can find four buttons: Repository, Options, Info and Online Help.





The *Repository button* lets you open the Repository window.



The *Options button* lets you change the behavior of the program itself.



The *Info button* shows program version and other useful information.



The Online Help shows help about program.

Status bar

The Status bar is located at the bottom of the main window and shows some information about the DL connected to the PC or the copy of a DL stored in archive data (Repository).



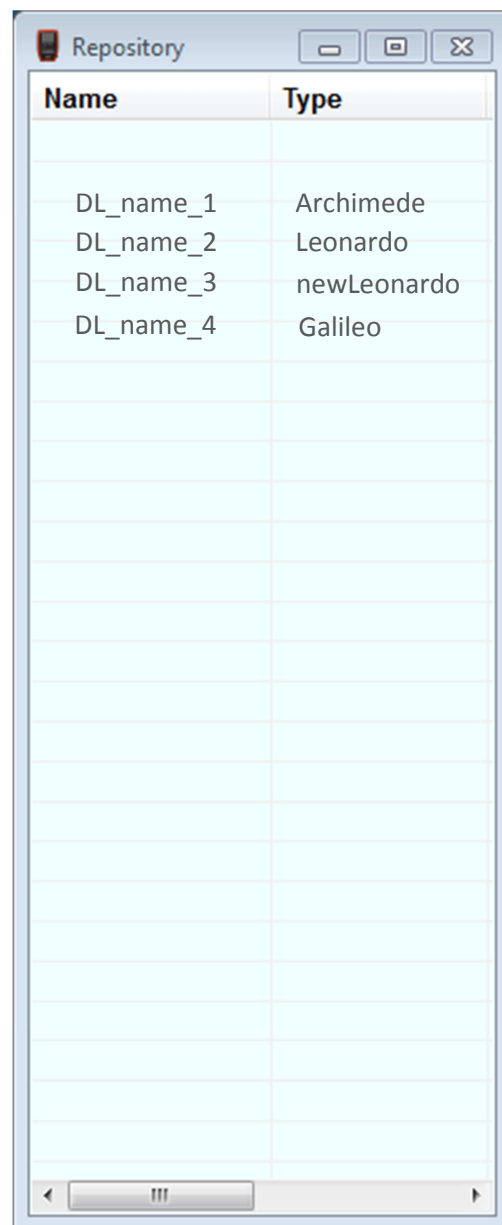
We can find: Type , Firmware Version , Name, Serial Number, Calibration Date, Language and Free Memory.



1. *Type of DL*: Archimede, Leonardo, New Leonardo or Galileo.
2. *Firmware Version* is the current firmware version of the DL.
3. *Name* is the descriptive name given by the user to the DL.
4. *Serial Number* is the number given by Sisgeo.
5. *Calibration date* is the time when the DL has been calibrated.
6. *Language* is the actual language being used for the user interface by DL.
7. *Free Memory* is the quantity of free space available in the DL memory.

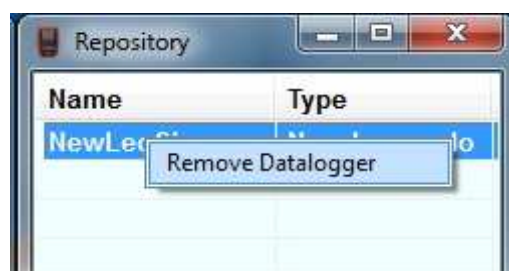
When you are working in off-line mode, information are taken from the archive: e.g. Free Memory refers to the hard disk free space.

Repository window



This window is usually closed. When you open it from the Repository button, the Repository window is located at the right side of the Main window and contains a list of the DLs stored in the PC memory. For each DL are shown *Name* and *Type*

To remove a DL from repository right click on the name of DL and select "Remove Datalogger".

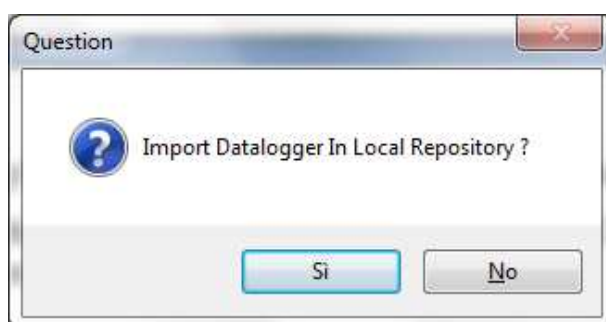


START UP OPERATIONS

SmartManager keeps a copy of DL data present in the DL; since no DL has been connected at first run, SmartManager window is empty. To start using the program you need to connect a DL with the USB cable to your PC. Proceed as follows:

- 1) If the SmartManager program is running, please close it.
- 2) Check if the SmartMonitor program is shown in your tray bar; if not, run it from the Start menu or restart your computer (SmartMonitor should be shown in the tray bar when Microsoft Windows® starts)
- 3) Connect a DL with the supplied USB cable to a free USB port of your PC.
- 4) From the DL Main menu select “4 - Communication” and then “1 – USB Disk”. Wait a few seconds for the PC to detect the new connected device.

SmartManager program will start and ask if you want to add this DL to the PC archive (Repository).



If you answer “No” you can use SmartManager in Stand-alone mode; if you answer “Yes” you can still use SmartManager in On line mode.

SmartManager will keep asking this question each time the DL is connected until the answer will be-“Yes”

At the end of the import process the Main window will turn red and a new DL entry will be added in the Repository window.

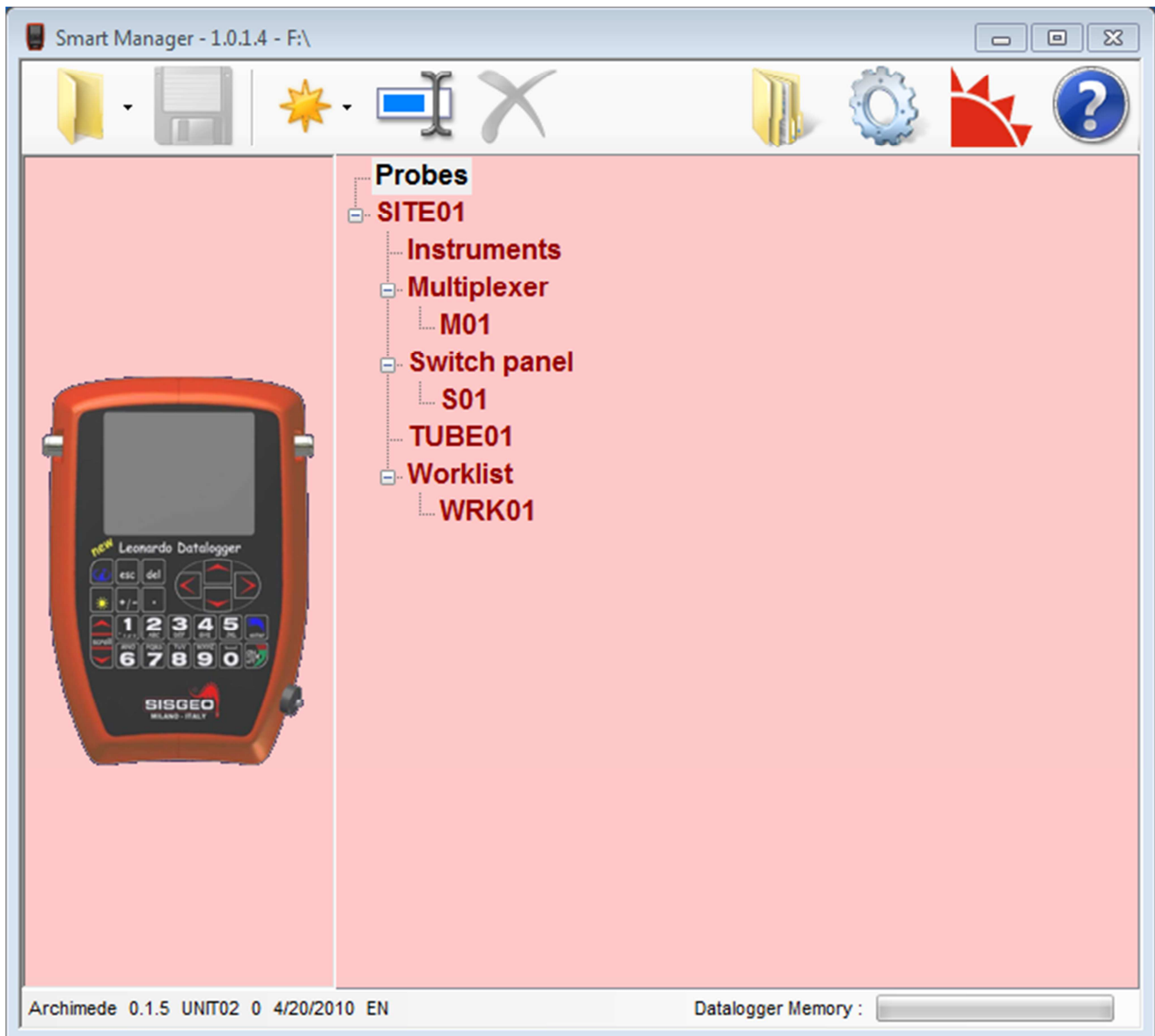
Now the program is working in the On line mode.

MAIN WINDOW CONTENTS

The main window of both Online and Stand-alone mode shows the DL memory organized by sites.

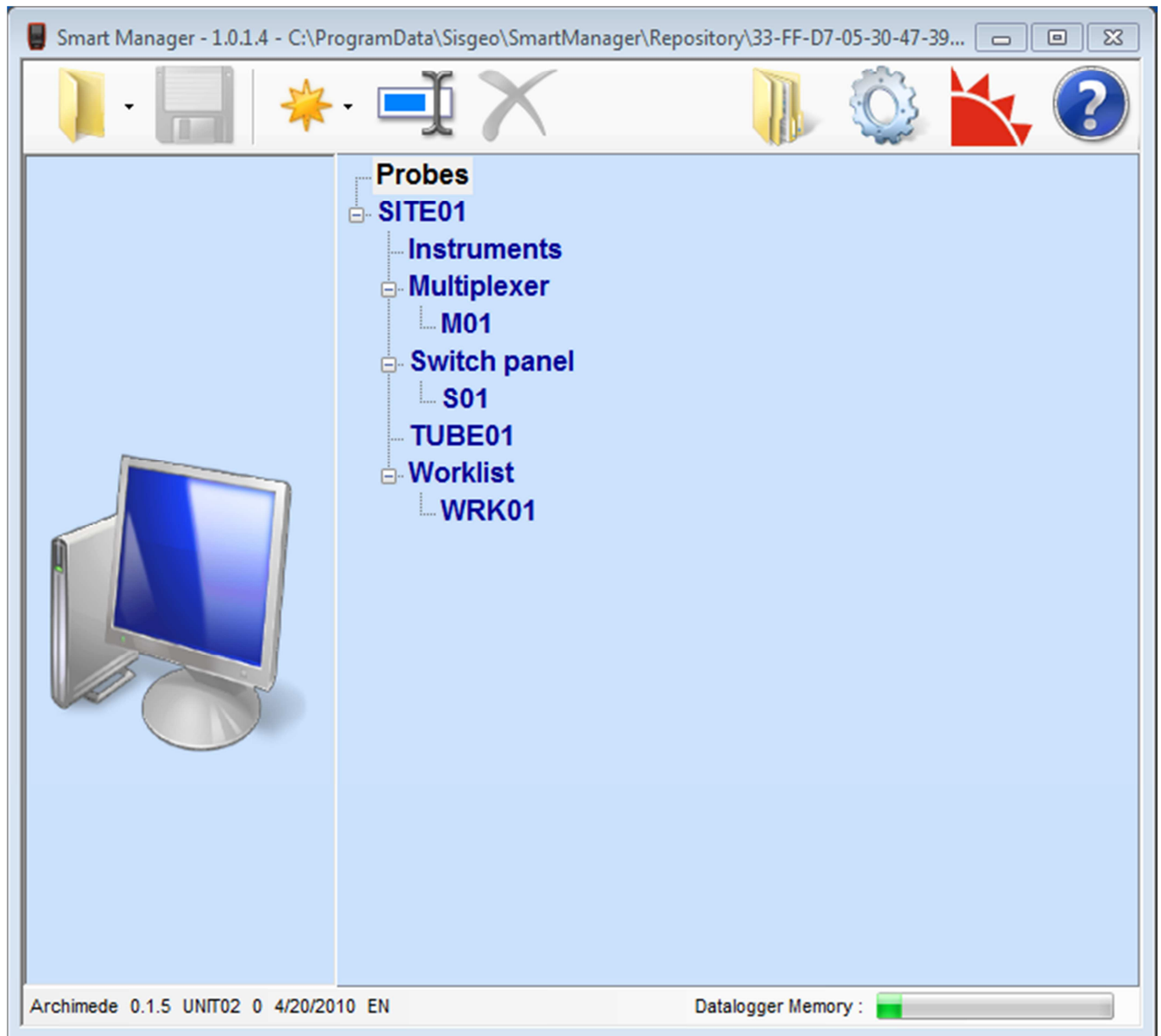
ON LINE MODE

The Online mode is activated each time you connect a DL. The Main window will turn red and you will see a DL image on the left of the Main window. **When you are in Online mode all actions take place on the DL memory.** If you are interested only in exporting data you can always use the program in Online mode only.



STAND ALONE MODE

If you start SmartManager without connecting a DL, you are in Standalone mode. The Main window will turn blue and you will see a PC image on the left of the Main window. To operate on a specific DL, double click it in the Repository window. **The Main window will display the data from the selected DL.**

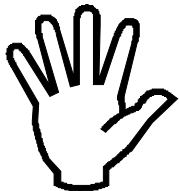


When you are in Stand-alone mode all actions take place only on the PC memory (Repository).

SYNCHRONIZATION PROCESS

When you connect a DL to your PC through an USB cable, SmartManager checks if that DL is in the PC archive: if not, it asks to add it.

If a DL is present, SmartManager will check for differences between data stored in the DL and the archived data (Repository).



Be careful and check which user is connected to the PC: the synchronization is closed for the account currently in use.

For each object (Site, Reading, Instrument, etc.) there are four options:

- 1) The objects is both in the DL and in the PC archive and there is no difference.
- 2) The object is both in the DL and in the PC archive but are different.
- 3) The object is only in the DL.
- 4) The object is only on the PC archive.

If there are no differences, nothing is asked; otherwise the program asks what to do. The program groups differences according to the kind of object (instruments, site, readings, etc). The first time differences are found, the program will ask what to do. The following actions can be applied:

1) Do Nothing

Do nothing keeps DL and PC archives untouched (the next synchronization will ask again what to do)

2) Copy From DL to PC

Copy From DL to PC copies all object of a given type from DL to PC when a difference is found.

3) Copy From PC to DL

Copy From PC to DL copies all object of a given type from PC archive to the Datalogger when a difference is found.

4) Merge Data

Merge data will be applied only for readings and instruments, and will merge data so that, at end of the synchronization process, the objects on the DL and on the PC will match.

5) Ask User for each object

Ask User for each object will ask what to do for each object.

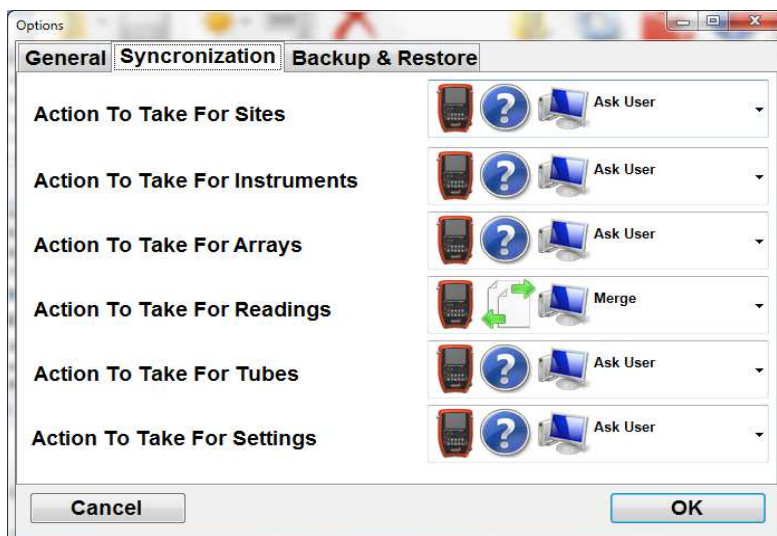


These options will be displayed the first time that SmartManager finds some differences between the DL and/or in the PC repository's data. The choices taken on the synchronization mode will be saved among the preferences and will not be required in the following connection/synchronization. Anyway it's possible to change this setting from SmartManager software option menu.



Sisgeo suggests to set "Ask User" for all synchronization typology (e.g. Sites, Instruments, Tubes etc...) apart from "Readings" item where SISGEO suggests to select "Merge".

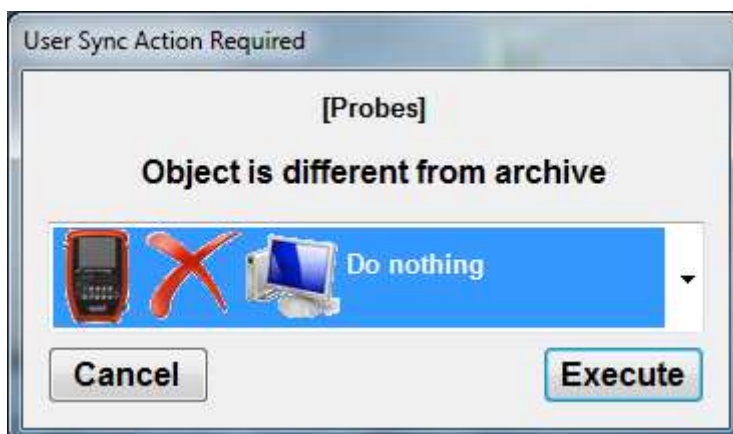
In this way the user are free to select the option each time.



Once these option are selected they are stored in program Options (see Program Options chapter to change them).



If the probe or instrument configuration has been changed, the following message is displayed during the synchronization: "Object is different from archive"



The message is generic because it is not possible to know if the change has been made in the DL or in the PC (Repository), therefore is very important to remember which is the latest modification in order to know exactly the direction of synchronization.

OBJECTS

SmartManager program handles all type of objects in the DL. These are the objects and their use:

SITE – This object is the container where all objects that refers to a specific location are stored

INSTRUMENTS – Each site contains a list of instruments used to perform the readings. You can create as many instruments as you require to be used in a site. The creation of instruments is a guided procedure, starting from selecting the type of instrument from a library of predefined instruments.



For Archimede, the probes' list will be saved in the INSTRUMENTS file located outside the site.

READINGS – Readings contains all executed readings (except from inclinometer test).

WORKLISTS – Work list is a list of instruments usually read in sequence.

MULTIPLEXERS – Multiplexers are special electronic devices that expand the use of DL to read multiple cabled instruments; they are normally used with ADK-100 data acquisition units.



Each chain of digital inclinometers is considered as a Multiplexer.

SWITCH PANELS – Switch panels are devices used to manually switch different instruments on one DL.

PROBES – The removable inclinometers probes are used to perform inclinometer tests.

INCLINOMETRIC TUBES – These objects describe the tubes where are performed inclinometer tests.

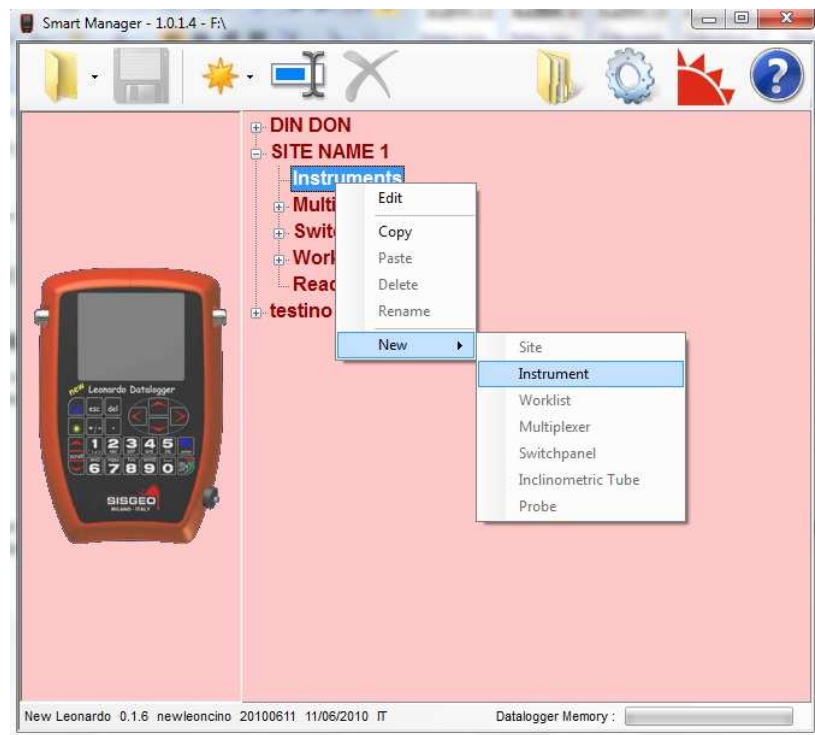
INCLINOMETRIC TEST – These are the tests executed on an inclinometer tube with a removable inclinometer probe.



Creating some object like Site and Multiplexer do not require saving changes (in these cases the save button will be not enable).

CREATION MODIFICATION AND DELETION OF OBJECTS

To create a new object you can either use the Toolbar new button or use the contextual menu clicking the mouse right button while selecting a site or an object.



The creation of each object is guided by a series of windows asking you to fill in the object's features.



When the user omits the necessary data, or enters incorrect data, an error message appears.



When you create, delete or modify something, the Save button will be enabled.

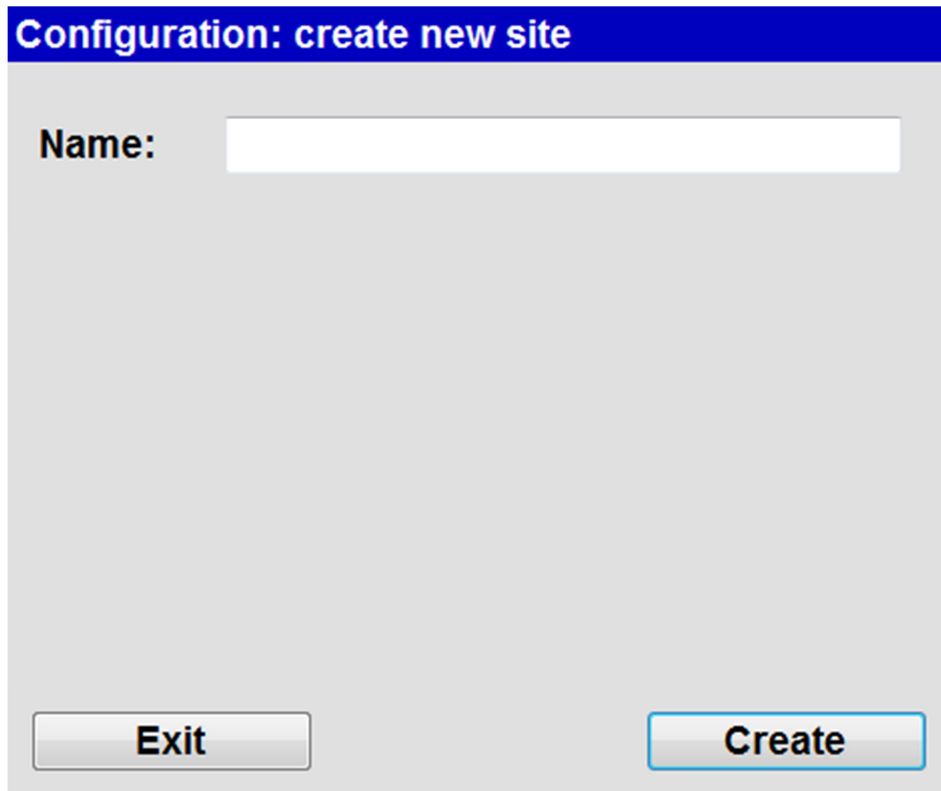


SISGEO suggests to save often the work to avoid the accidental data losing for reasons not connected to the software.

The next time you connect the DL you will be asked to synchronize the changed objects.

SITE CREATION

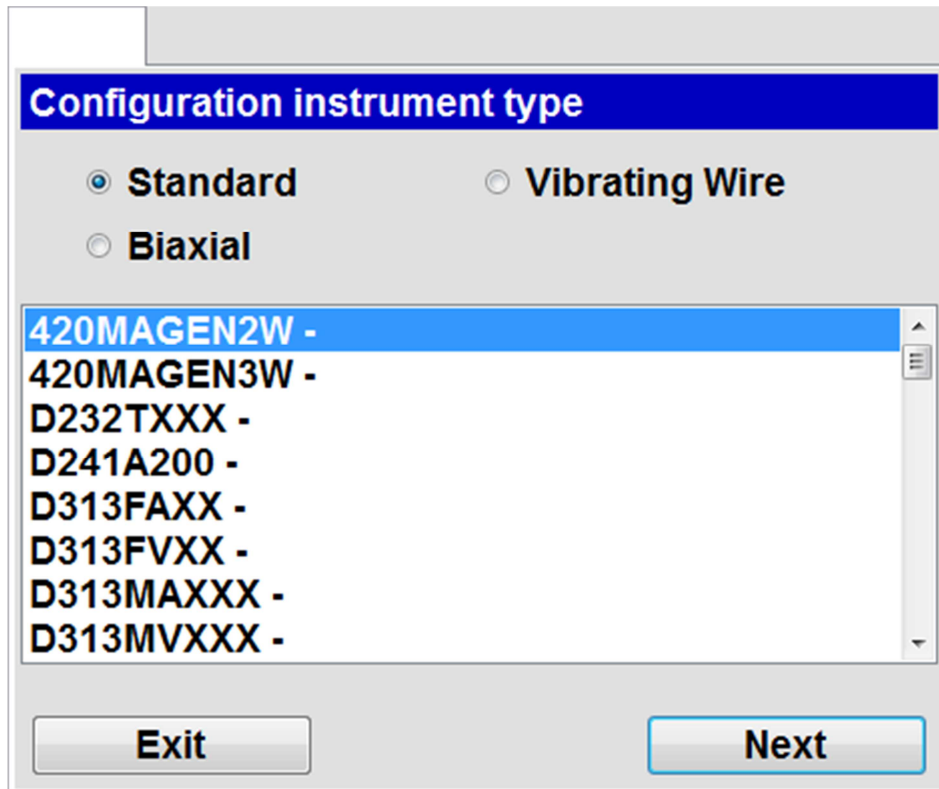
To create a new site select *New* → *Site* from the New toolbar button. You will be requested to give the site a name.

A screenshot of a software dialog box titled "Configuration: create new site" in a blue header bar. The main area is light gray and contains a label "Name:" followed by a white text input field. At the bottom, there are two buttons: "Exit" on the left and "Create" on the right, both with a 3D effect.

INSTRUMENT CREATION

To create a new instrument first select the site for the new instrument then select *New* → *Instrument* from the toolbar or from the Menu. A series of windows will guide you in the creation process. First you are asked to select the type of the new instrument. Instrument types are a predefined Sisgeo Library . Instrument Library is divided in three categories: Standard, Biaxial and Vibrating Wire.

Standard instruments are all the instruments with a single channel / single axes, whereas *Biaxial instruments* have two channels/ two axes. *Vibrating Wires instruments* are a special kind of instruments (only Galileo and New Leonardo unit can read them).

A screenshot of a software dialog box titled "Configuration instrument type". It contains three radio button options: "Standard" (selected), "Vibrating Wire", and "Biaxial". Below the options is a list box containing the following instrument models: "420MAGEN2W -", "420MAGEN3W -", "D232TXXX -", "D241A200 -", "D313FAXX -", "D313FVXX -", "D313MAXXX -", and "D313MVXXX -". The first item, "420MAGEN2W -", is highlighted in blue. At the bottom of the dialog are two buttons: "Exit" on the left and "Next" on the right.

Configuration instrument type

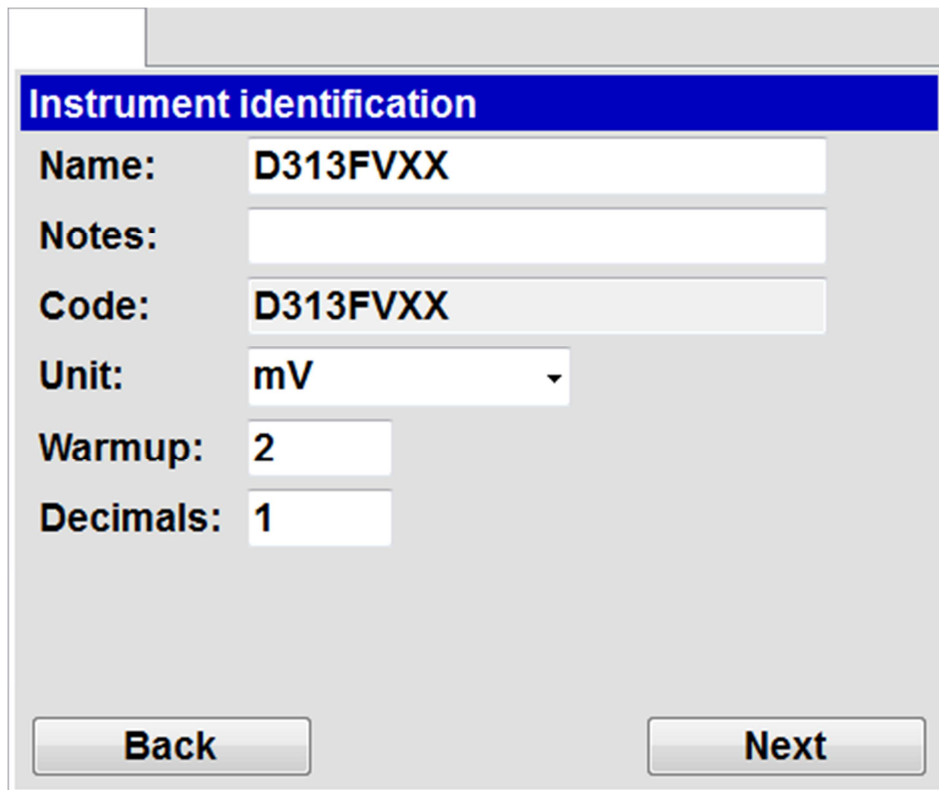
☒ **Standard** ☐ **Vibrating Wire**
☐ **Biaxial**

420MAGEN2W -
420MAGEN3W -
D232TXXX -
D241A200 -
D313FAXX -
D313FVXX -
D313MAXXX -
D313MVXXX -

Exit **Next**

STANDARD INSTRUMENT CREATION

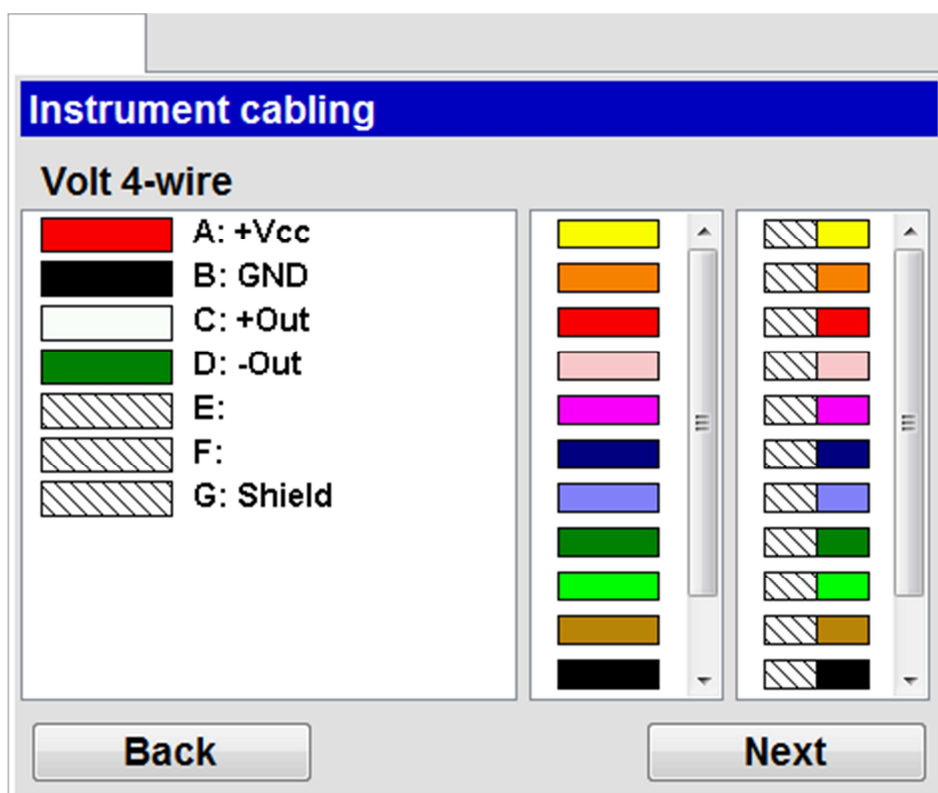
After selecting a standard instrument from the Sisgeo' s library, will be shown the following Instrument identification dialog:

A screenshot of a software dialog box titled "Instrument identification". The dialog has a blue header bar with the title in white. Below the header, there are several input fields: "Name:" with the value "D313FVXX", "Notes:" with an empty field, "Code:" with the value "D313FVXX", "Unit:" with a dropdown menu showing "mV", "Warmup:" with the value "2", and "Decimals:" with the value "1". At the bottom of the dialog, there are two buttons: "Back" on the left and "Next" on the right.

Instrument identification	
Name:	D313FVXX
Notes:	
Code:	D313FVXX
Unit:	mV
Warmup:	2
Decimals:	1
BackNext	

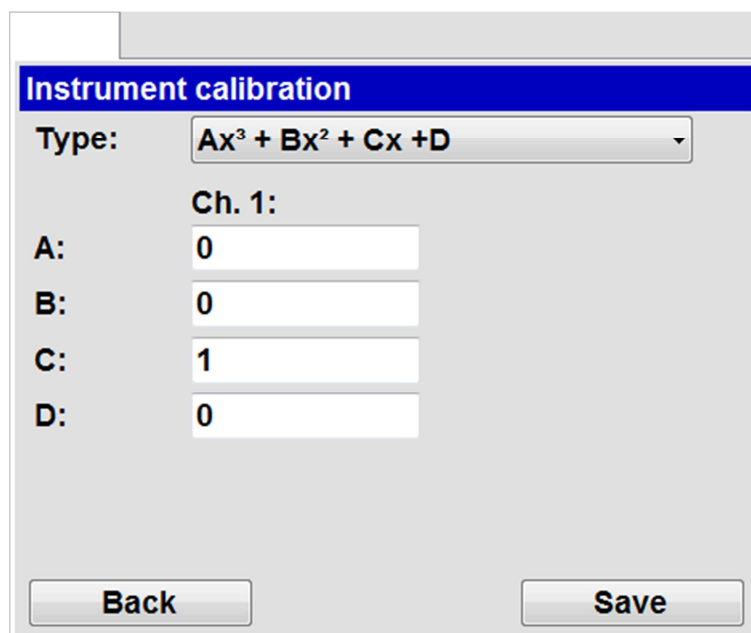
Fill in *Name*, *Warm-up* and *Decimals* digit. Also check that the name you are using is unique, otherwise a dialog will warn you and ask to change instrument's name. By pressing the Next button the following dialog will be shown.

Click *Next* and will be shown the following window:



For most instruments the wire colors are predefined, based on the Sisgeo Library Instrument (see "Appendix A" of DL manuals for details). If you want to change it, select the wire, then select the first list for plain colors and one in the second for bicolor wires. To remove colors press the delete key while the colors list is selected.

Once the color wiring scheme is defined, the Calibration dialog will be shown.



In this dialog window is defined the polynomial used to convert from the electrical measure to the physical value. You can select the grade of the polynomial. Parameters (A,B,C,D) can be found in the Calibration Report of the instrument.

RESULTS					
Linear sensitivity factor			<i>S</i>	max.err.	
			[mA/sina]	%F.S.	
	channel A		28,92582	0,25161	
	channel B		28,89226	0,12813	
Polynomial sensitivity factors			<i>A</i>	<i>B</i>	<i>C</i>
$[sina] = A \cdot [mA]^3 + B \cdot [mA]^2 + C \cdot [mA] + D$			[sina/mA ³]	[sina/mA ²]	[sina/mA]
	channel A		-1,452E-06	3,110E-05	3,453E-02
	channel B		-5,479E-08	-9,996E-06	3,488E-02
				<i>D</i>	max.err.
				[sina]	%F.S.
				-4,157E-01	0,17039
				-4,163E-01	0,06243
NOTES : Resulting error depends on the effects of linearity and hysteresis. With "Multilogger" software the linear factor S has to be inserted reverted (1/S)					
Wiring : red=+Loop Ch.A; black=-Loop Ch.A; white=+Loop Ch.B; green=-Loop Ch.B					

Click on *Save* button and the instrument will be created.

BIAXIAL INSTRUMENT CREATION

Biaxial instrument creation follows the same steps used for Standard instruments, but have to be filled the polynomial conversion parameters for both channel.

Instrument calibration

Type: Ax³ + Bx² + Cx + D

Ch. 1:

Ch. 2:

A:

B:

C:

D:

0

0

1

0

0

0

1

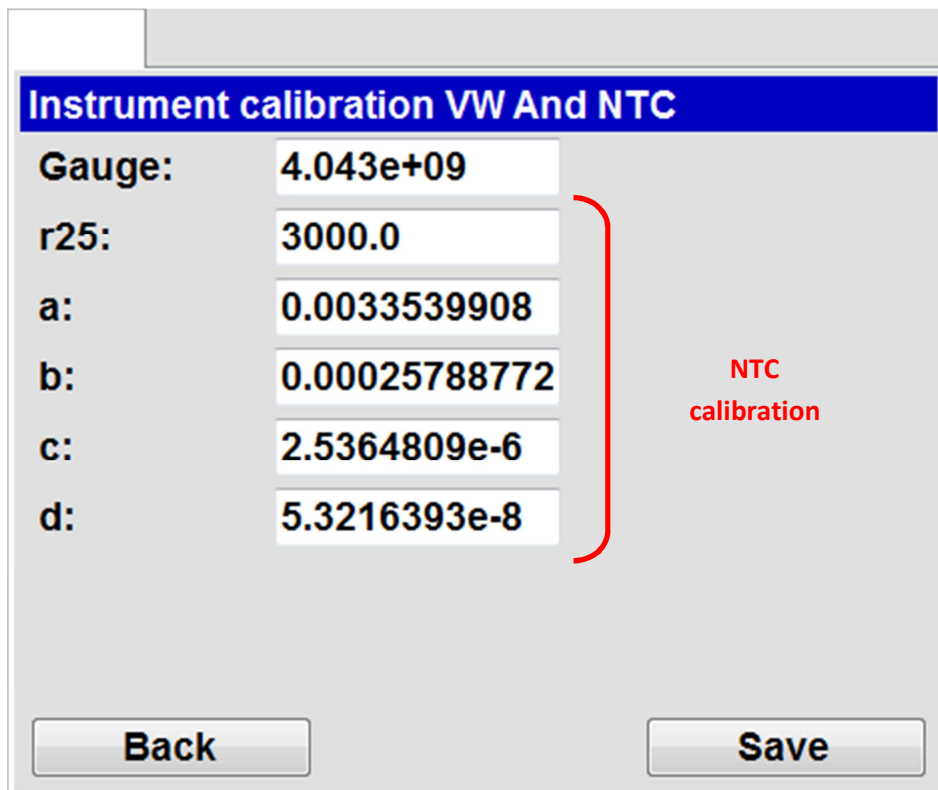
0

Back

Save

VIBRATING WIRE INSTRUMENTS CREATION

For vibrating wires the program will ask for NTC (thermistor) calibration and Gauge parameter (for μE conversion).

A screenshot of a software dialog box titled "Instrument calibration VW And NTC". It contains input fields for Gauge, r25, a, b, c, and d. A red bracket on the right side of the dialog groups the r25, a, b, c, and d fields under the label "NTC calibration". At the bottom are "Back" and "Save" buttons.

Instrument calibration VW And NTC	
Gauge:	4.043e+09
r25:	3000.0
a:	0.0033539908
b:	0.00025788772
c:	2.5364809e-6
d:	5.3216393e-8

NTC calibration

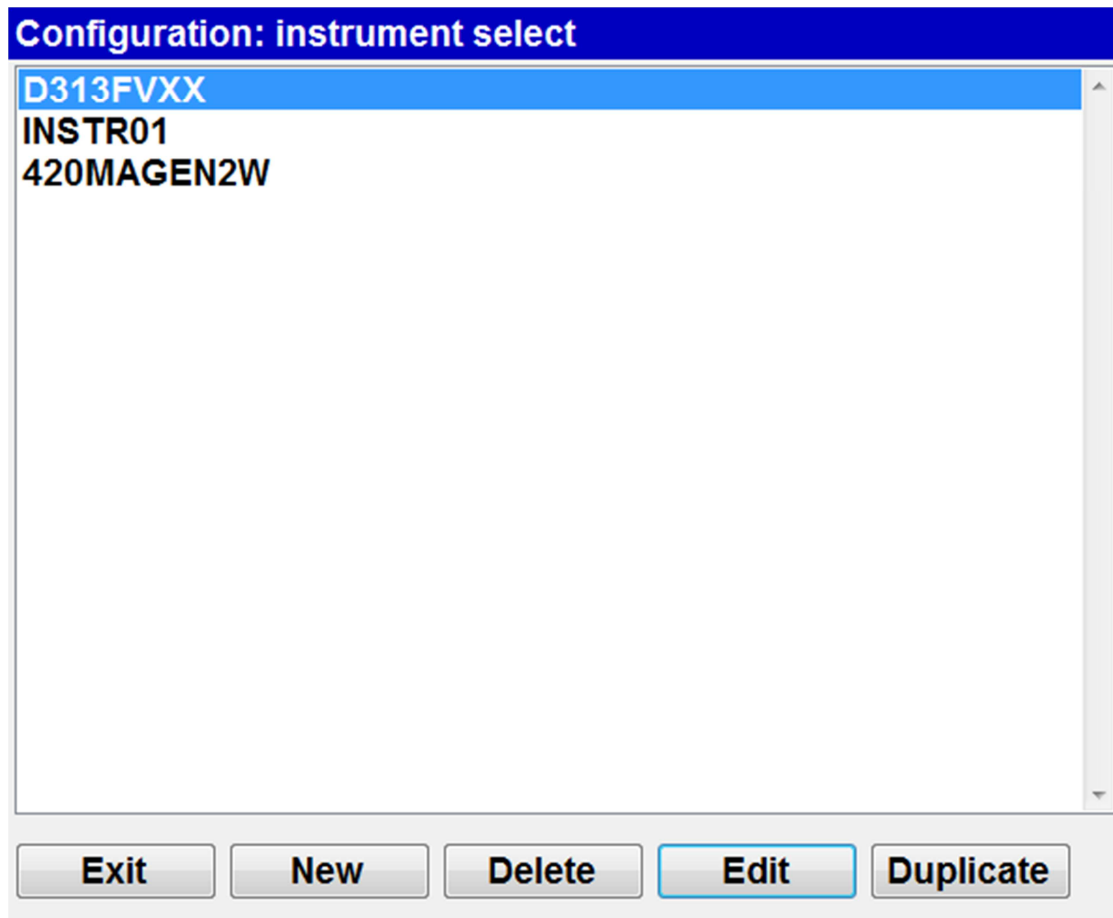
Back Save



You should not modify the NTC (thermistor) calibration

INSTRUMENT EDITING

To edit or remove an instrument double click on "INSTRUMENTS" in the site involved and you will be prompted with the list of instruments.



From this dialog box you can create, delete, edit or duplicate the selected instrument.

WORKLIST CREATION

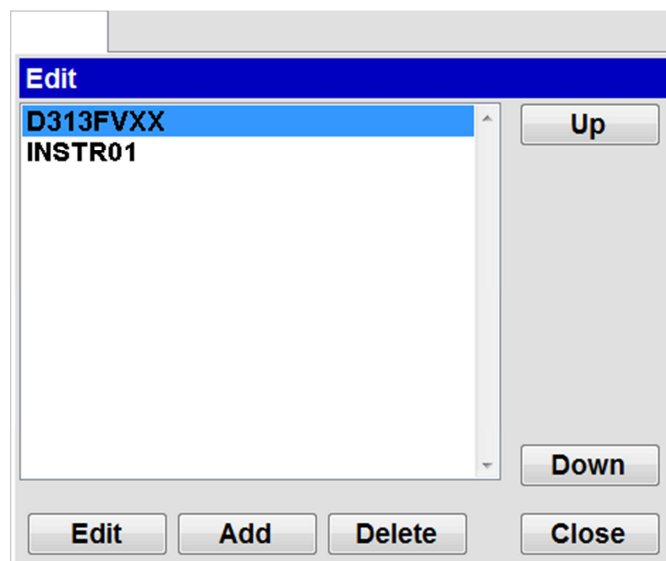
Worklist are lists of instruments to be read in sequence.

You can have more than one worklist in the same site.



To create a worklist you must first create all the instruments requested for the worklist.

First you should give a name to the worklist, then will be shown the following dialog box. At the beginning the list will be empty; in the image, two instrument has been defined.

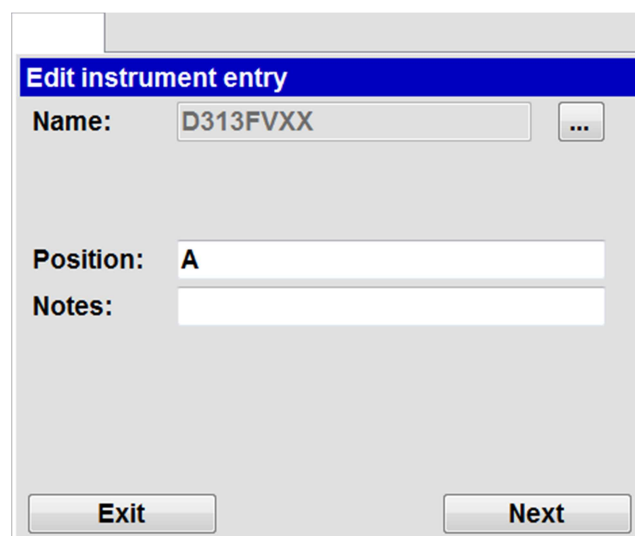


Use *Up* and *Down* buttons to order instruments in the list.

Use *Delete* to remove instruments from the worklist and *Edit* to change it.

To add an instrument click *Add* button; the following dialog will be shown.

To select an instrument click the "... " button: will be shown the list of the current site instruments .



Once you have selected the instrument you can fill in the Position and Notes fields.



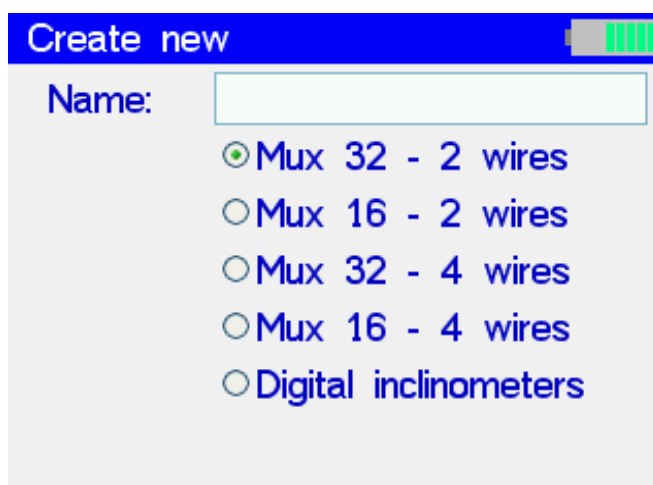
An instrument can't be added twice.

MULTIPLEXER CREATION

Multiplexers are lists of instruments that are connected and read with special electronic device (multiplexer). There are 4 types of Multiplexer boards:

- 32 channel for 2 wires instrument,
- 16 channels for 2 wires instrument,
- 32 channels for 4 wires instrument,
- 16 channels for 4 wires instrument.
- Chain of digital inclinometers

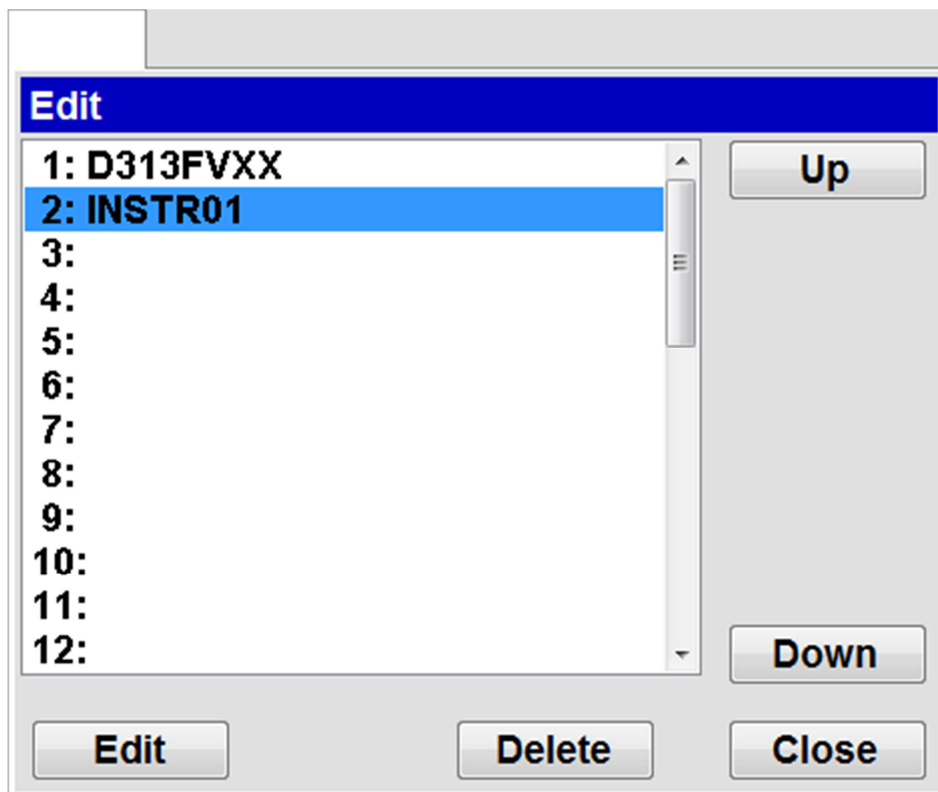
The first dialog box will ask you to select a name for the multiplexer and its type.



After you click the *Next* button, will be displayed a list of instruments for each multiplexer channel.

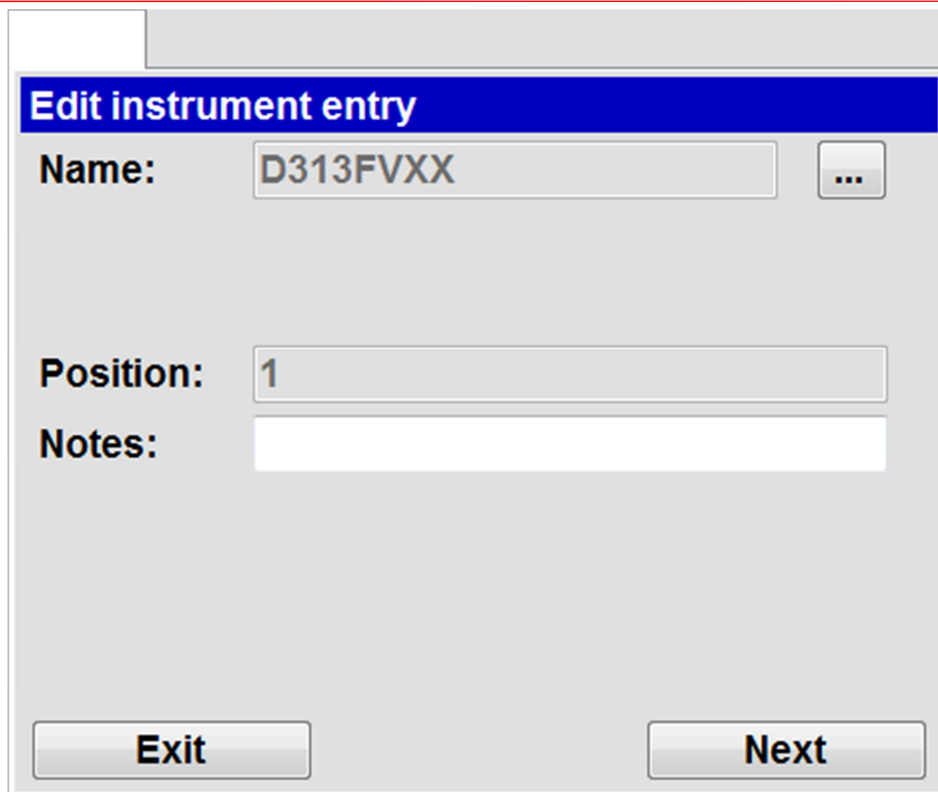


To create multiplexer you have to create first all the instruments required for it. This precaution is not applicable for chains of digital inclinometers: please read the DL manuals for details



Use “Up” and “Down” buttons to select the channel for the chosen-instrument. Click “Delete” to remove an instrument from a multiplexer.

To select the instrument connected to a channel, click the “Edit” button; the following dialog box will be shown.



Edit instrument entry

Name: D313FVXX

Position: 1

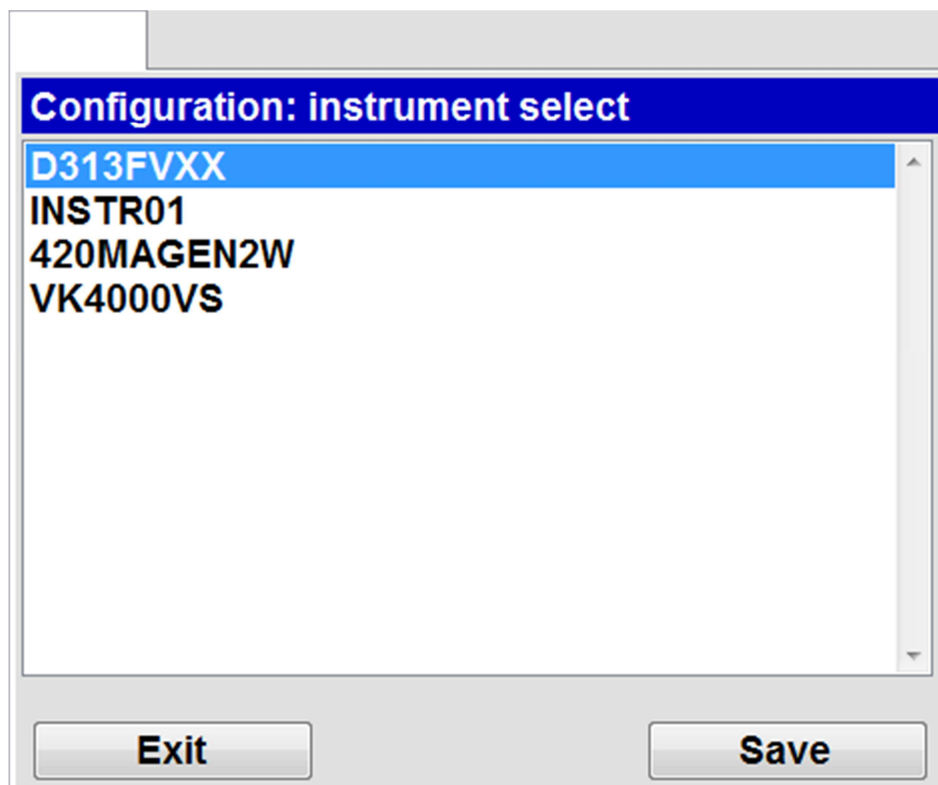
Notes:

Exit Next

To select an instrument click on the “...” button: the list of current site instruments will be shown. Once you have selected the instrument you can fill in the position and notes field.



Instrument can't be added twice.



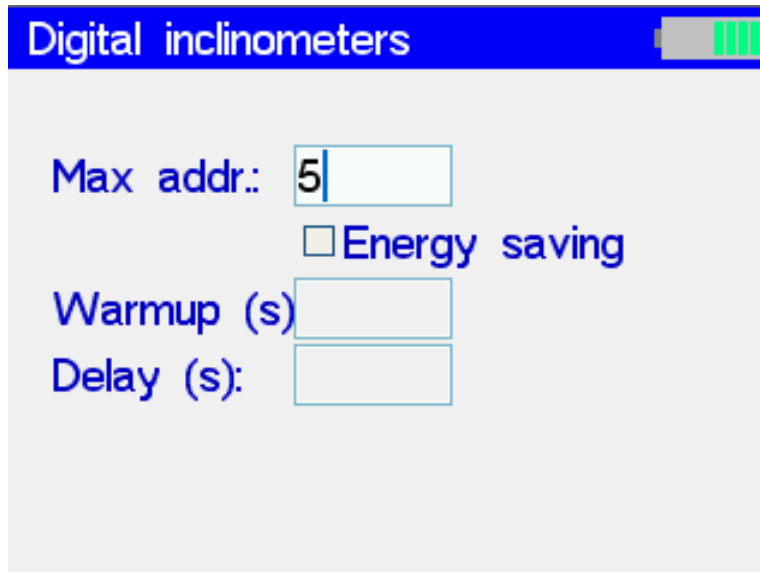
Configuration: instrument select

D313FVXX
INSTR01
420MAGEN2W
VK4000VS

Exit Save

After selecting the instrument, click *Save* to return to the multiplexer list.

If “digital inclinometers” is selected as type of multiplexer, will be shown only the following dialog box:

A screenshot of a software dialog box titled "Digital inclinometers". The title bar is blue with white text. In the top right corner of the dialog, there is a battery status icon showing four green bars. The main area of the dialog is light gray and contains the following controls: a label "Max addr.:" followed by a text input field containing the number "5"; a checkbox labeled "Energy saving" which is currently unchecked; a label "Warmup (s)" followed by an empty text input field; and a label "Delay (s):" followed by an empty text input field.

Digital inclinometers

Max addr.: 5

☐ Energy saving

Warmup (s)

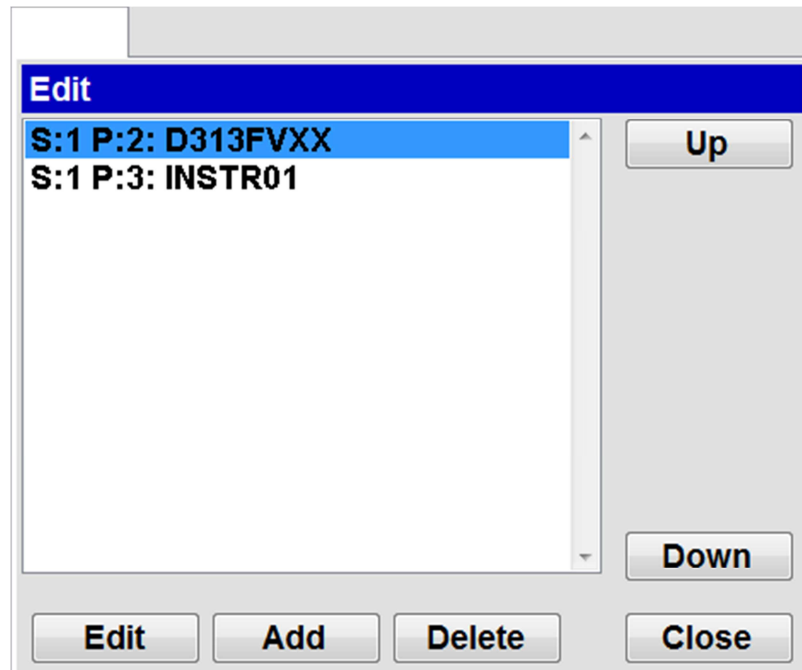
Delay (s):

Please read the DL manual for details.

SWITCH PANEL CREATION

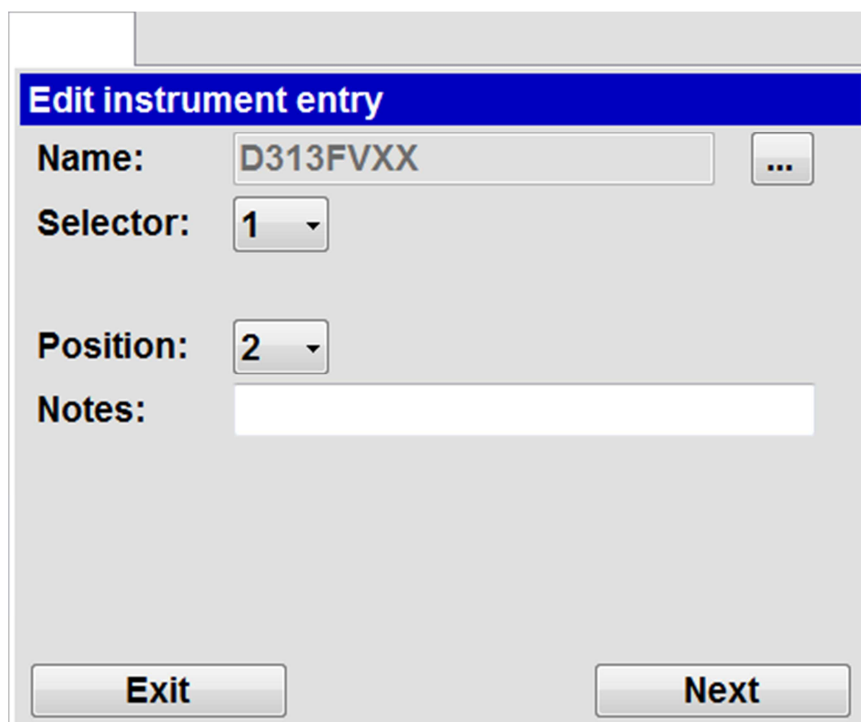
Switch Panels are similar to Multiplexers but the selection of channels is made manually switching a selector and positioning a rotor switch.

As for Multiplexers and Work lists, a name will be required and a list of instruments ordered by selection and position will be shown.



To add a new instrument click the *Add* button; the following dialog box will be shown.

Please read the DL manuals for details.

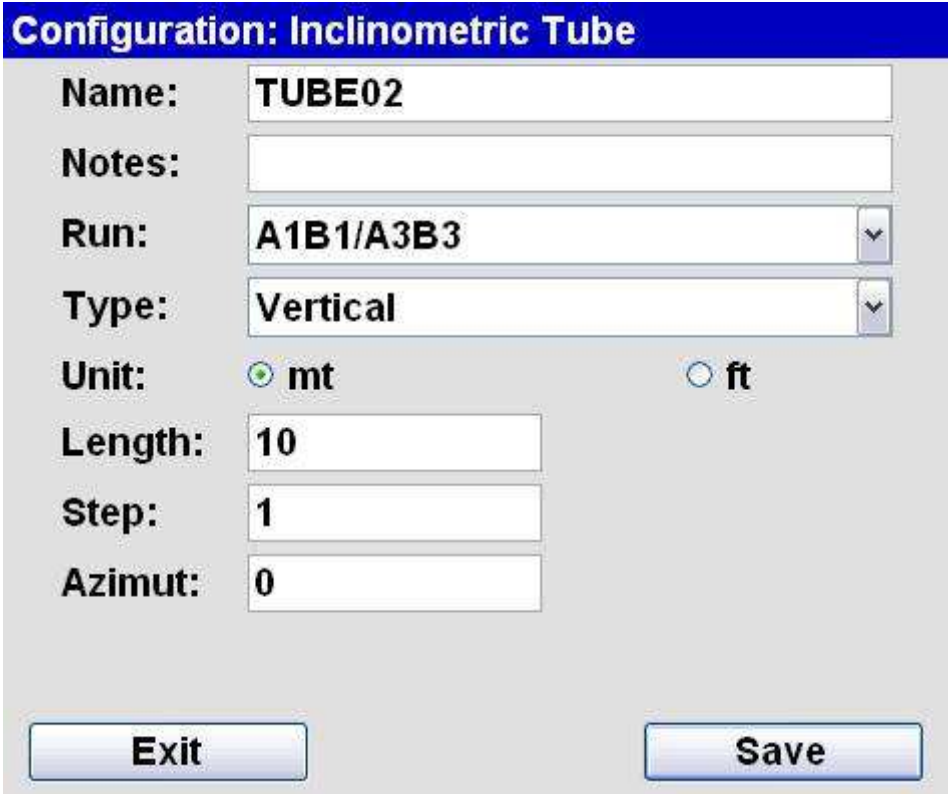


After selecting an instrument using “...” button, you must provide the *Selector* and *Position* value.

ARCHIMEDE ONLY

TUBE CREATION

To create a new inclinometer tube, select the SITE where the tube will be created and click the *New* button located in the toolbar or press the right mouse button on SITE and select *New* → *Inclinometer Tube* from menu.

A screenshot of a software dialog box titled "Configuration: Inclinometric Tube". The dialog has a blue header bar with the title in white. Below the header, there are several input fields and controls. "Name:" is followed by a text box containing "TUBE02". "Notes:" is followed by an empty text box. "Run:" is followed by a dropdown menu showing "A1B1/A3B3". "Type:" is followed by a dropdown menu showing "Vertical". "Unit:" is followed by two radio buttons: "mt" (which is selected, indicated by a green dot) and "ft". "Length:" is followed by a text box containing "10". "Step:" is followed by a text box containing "1". "Azimut:" is followed by a text box containing "0". At the bottom of the dialog, there are two buttons: "Exit" on the left and "Save" on the right.

Configuration: Inclinometric Tube

Name: TUBE02

Notes:

Run: A1B1/A3B3

Type: Vertical

Unit: ☒ mt ☐ ft

Length: 10

Step: 1

Azimut: 0

Exit **Save**

You will be requested to fill in the following fields: *Name*, *Length* and *Step*. You can also define the *Run* of inclinometer tube, *Type*, *Unit* of measurement and some *Notes*.

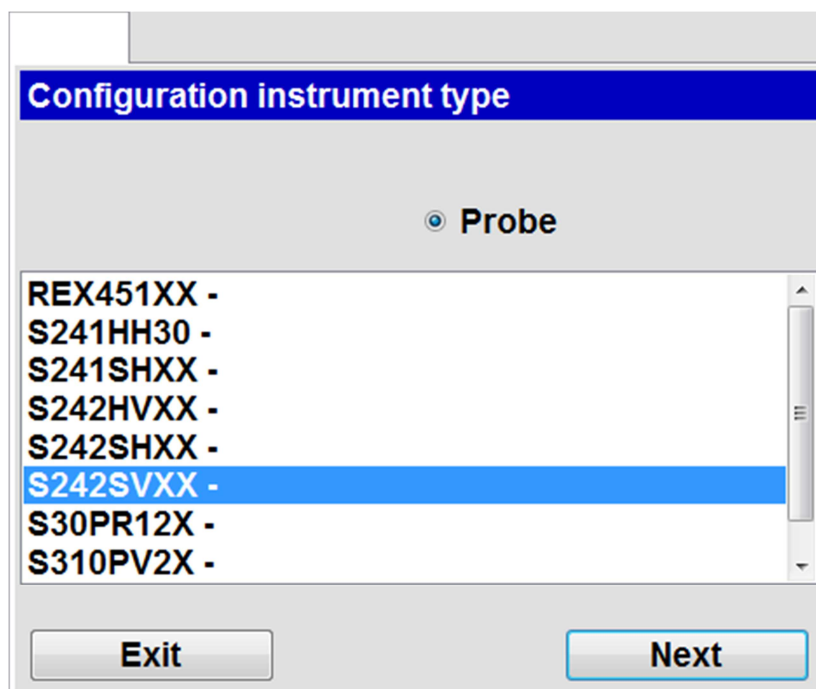
Please read the DL manuals for details.

PROBE CREATION

To create a new inclinometer probe, select “PROBES” in the Main window and use the “New” button located in the toolbar or press the right mouse button on PROBES and select *New* → *Probe* from menu.

A procedure will guide you through the process of creating a new probe.

First you will be asked to select the kind of probe, from the Sisgeo probe library (see “Appendix A” of DL manuals for details).



The dialog box titled "Configuration instrument type" has a blue header bar. Below the header, there is a radio button labeled "Probe" which is selected. Below this is a list box containing the following items: REX451XX -, S241HH30 -, S241SHXX -, S242HVXX -, S242SHXX -, S242SVXX -, S30PR12X -, and S310PV2X -. The item S242SVXX - is highlighted with a blue background. At the bottom of the dialog, there are two buttons: "Exit" on the left and "Next" on the right.

Once selected, the probe has to be customized.



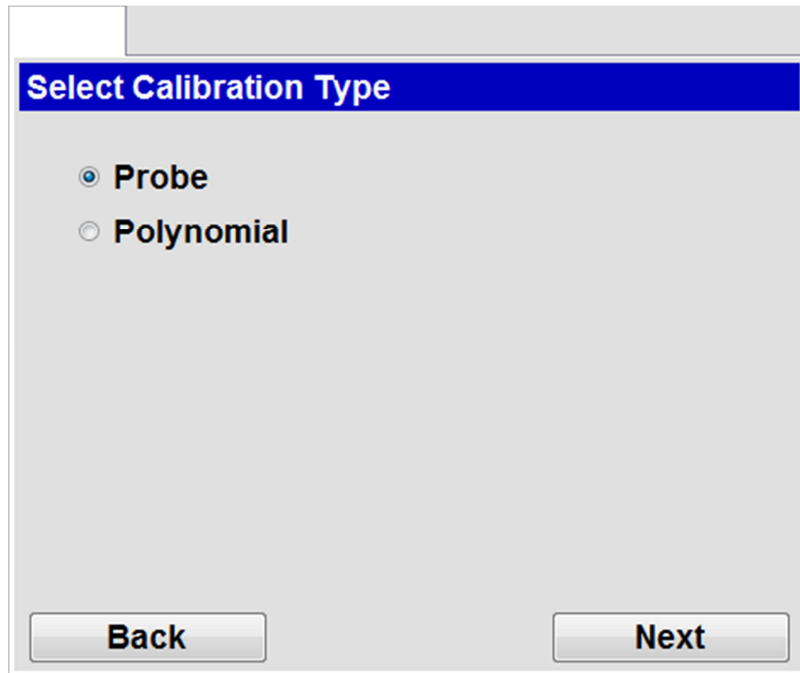
The dialog box titled "Instrument identification" has a blue header bar. Below the header, there are several input fields: "Name:" with the value "S242SVXX", "Notes:" with an empty field, "Code:" with the value "S242SVXX", "Unit:" with a dropdown menu showing "20kSin(α)", and "Decimals:" with the value "0". At the bottom of the dialog, there are two buttons: "Back" on the left and "Next" on the right.

This customization is not applicable for digital inclinometer probes because the configuration is already saved on the probe: please, read the DL manuals for details.

Customization of a inclinometer probe lets you select a *Name** (max 15 characters), some *Notes*, *Unit*, *Warm-up time** and number of *Decimal digit** to display.

()required*

For biaxial probes it is possible to define the calibration as two Polynomial or as a specific Probe calibration.

A screenshot of a software dialog box titled "Select Calibration Type". The dialog has a blue header bar with the title in white. Below the header, there are two radio button options: "Probe" (which is selected) and "Polynomial". At the bottom of the dialog, there are two buttons: "Back" on the left and "Next" on the right.

Select Calibration Type

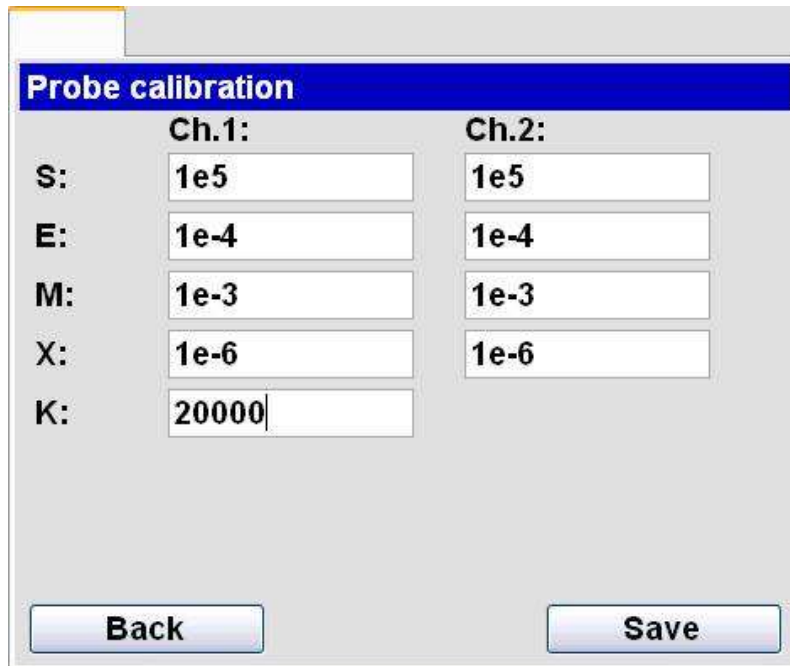
☒ **Probe**

☐ **Polynomial**

Back **Next**

Probe calibration requires you to fill *Span*, *Electrical Offset*, *Mechanical Offset* and *Cross Axis* parameters for each probe axis. See the Sisgeo Calibration Report to retrieve these parameters.

Polynomial calibration requires you to fill in a set of coefficients for each probe axis. The degree of the polynomial may be selected using the list at the top (use down arrow to change).

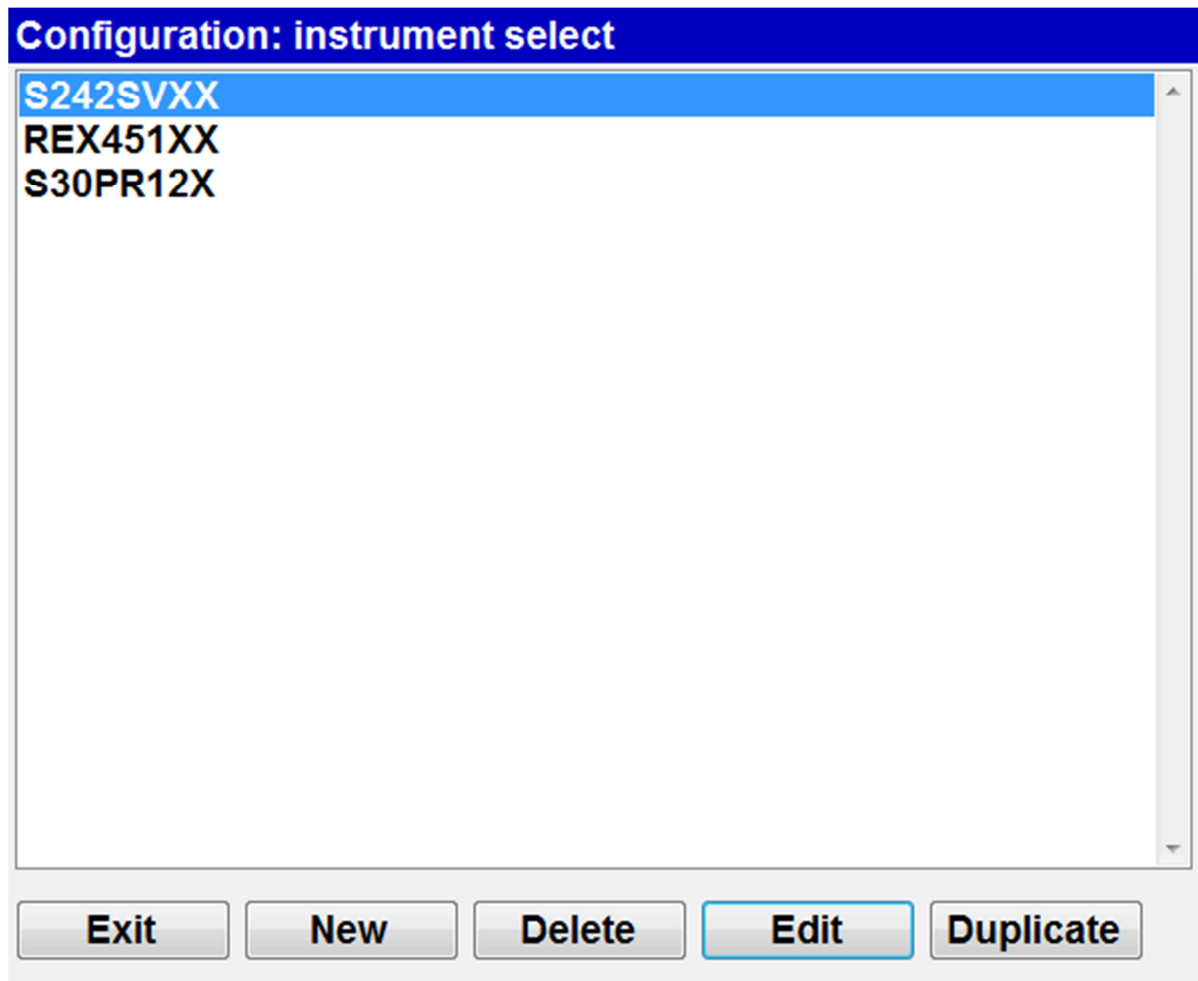
A screenshot of a software dialog box titled "Probe calibration". The dialog has a blue header bar with the title. Below the header, there are two columns of input fields labeled "Ch.1:" and "Ch.2:". To the left of these columns are labels "S:", "E:", "M:", "X:", and "K:". Each label has a corresponding input field in both columns. The "Ch.1:" column has values "1e5", "1e-4", "1e-3", "1e-6", and "20000". The "Ch.2:" column has values "1e5", "1e-4", "1e-3", "1e-6", and an empty field. At the bottom of the dialog are two buttons: "Back" and "Save".

	Ch.1:	Ch.2:
S:	1e5	1e5
E:	1e-4	1e-4
M:	1e-3	1e-3
X:	1e-6	1e-6
K:	20000	

Back Save

PROBES EDITING

To edit inclinometer probes you can double click on the “PROBES” labels you will find in the Main window. A list of all available probes is shown



The buttons at the bottom allows to : Create new probe (*New*), delete selected probe (*Delete*), change probe's setting (*Edit*) or duplicate the selected probe (*Duplicate*); double clicking on the chosen probe will open the probe's configuration in editing mode.

COPY AND PASTE

Right clicking on any object will display a popup menu. In the popup menu you can find “Copy” and “Paste” command. The “Copy” command will copy to the clipboard the selected object. The “Paste” command will move the object from the clipboard to the selected position.

Example 1: If you have configured a site with some instruments you can copy instruments from one site to another.

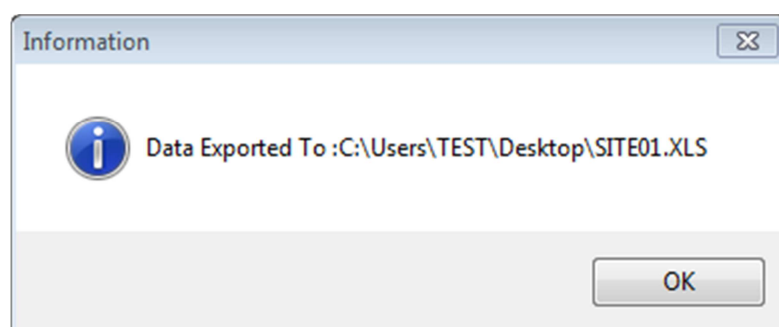
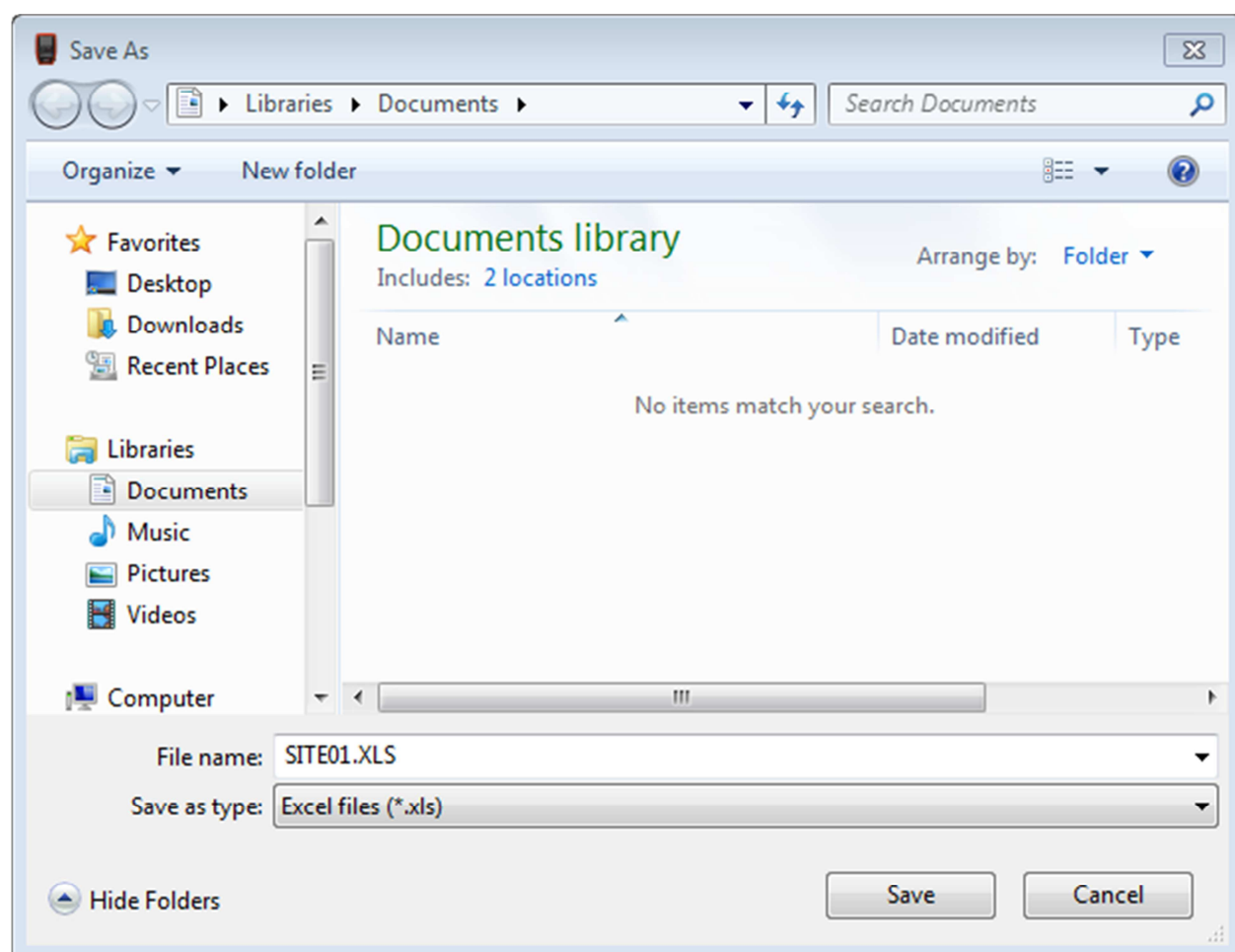
Example 2: You have two DLs and you can copy a site from one to another

Start manually SmartManager and select from Repository the DL containing the site you want to copy. Right click and select copy. From the Repository, open the DL where you want to copy the site. Select any object and right click on paste. The site will be copied from one DL to the other. Next time you will connect second DL you will be asked to sync the new copied site.

It is also possible to copy some object from a site or DL, to another using “Drag and Drop”

EXPORTING DATA

Instruments readings are saved separately on each site. Every site has its own readings. All readings coming from single instruments or instrument array (Multiplexer, Switch panel and Worklist) are stored together. SmartManager exports readings in Microsoft Excel format separating reading from different sources (multiplexers, manual readings etc) in different Microsoft Excel sheets. To export data, double click on readings. A dialog window will ask you for the place where to save Microsoft Excel file with the exported data. By default, the name of the export file is the name of the site.



INCLINOMETER TESTS

Readings from inclinometer tests are stored separately . Each test is shown under the tube where it has been performed. Double clicking on a inclinometer test, will display a dialog asking where to save the exported file.

The exported format depends on the kind of inclinometer test executed



It is also possible delete inclinometer tests: please, be careful to avoid accidental deletion.

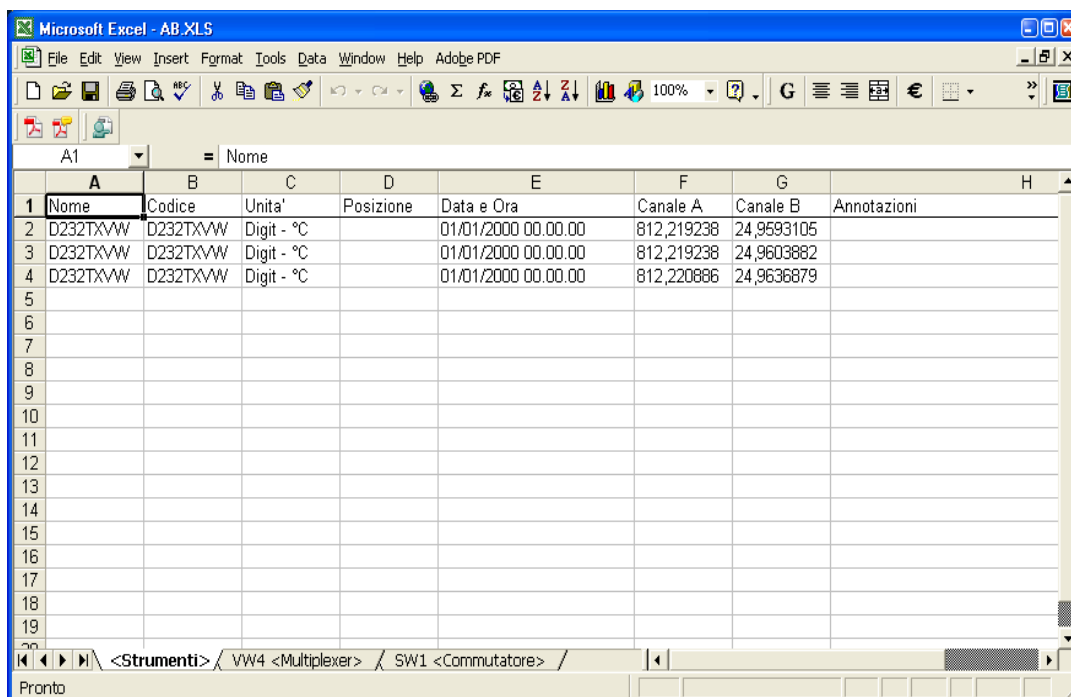
EXPORTED FILE FORMATS

The exported files for readings are in Microsoft Excel format. The Microsoft Excel File will have one sheet for manual readings and one sheet for each multiple reading device (Multiplexer, Worklist and Switch Panel).

Inclinometer tube test data are exported in different format depending from the of test:

- inclinometer test and spiralometric tests are exported in Sisgeo format to be used with analysis software ("Incli2" program for example).
- T-REX is exported in Microsoft Excel format, ready to be processed with analysis software (Sisgeo "T-REX Analyzer" program for example).

This is an example of Microsoft Excel file generated by reading from a Galileo Datalogger:



The screenshot shows a Microsoft Excel window titled "Microsoft Excel - AB.XLS". The spreadsheet has columns labeled A through H. The data is organized as follows:

	A	B	C	D	E	F	G	H
1	Nome	Codice	Unita'	Posizione	Data e Ora	Canale A	Canale B	Annotazioni
2	D232TXVW	D232TXVW	Digit - °C		01/01/2000 00.00.00	812,219238	24,9593105	
3	D232TXVW	D232TXVW	Digit - °C		01/01/2000 00.00.00	812,219238	24,9603882	
4	D232TXVW	D232TXVW	Digit - °C		01/01/2000 00.00.00	812,220886	24,9636879	
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

The status bar at the bottom shows: "Pronto" and navigation controls. The sheet name is "Strumenti".

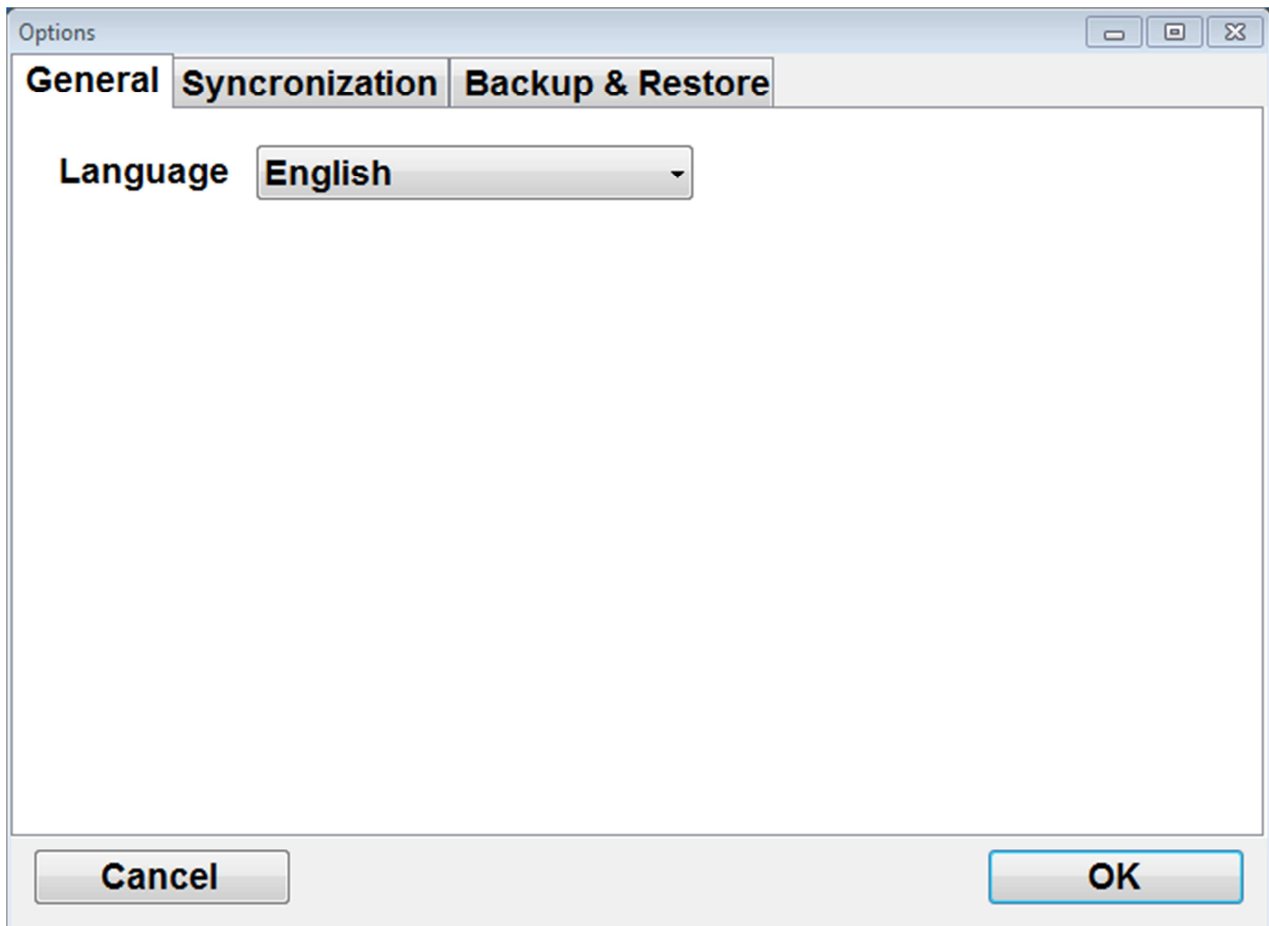
PROGRAM OPTIONS

By clicking the gear button in the tool bar you can access program options.



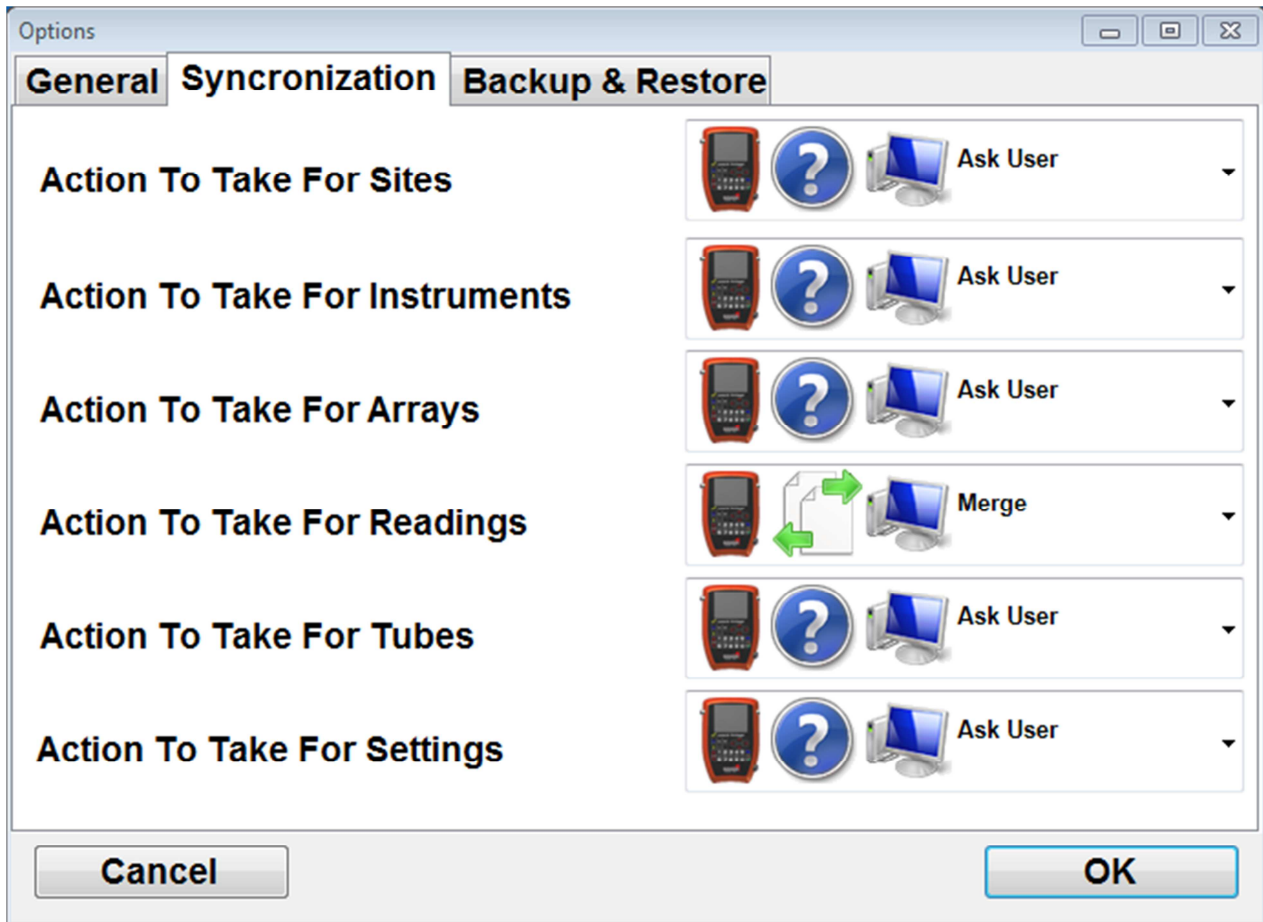
There are three kind of options: General, Synchronization, Backup & Restore.

General options let you change the interface language of the program (English and Italian are implemented).

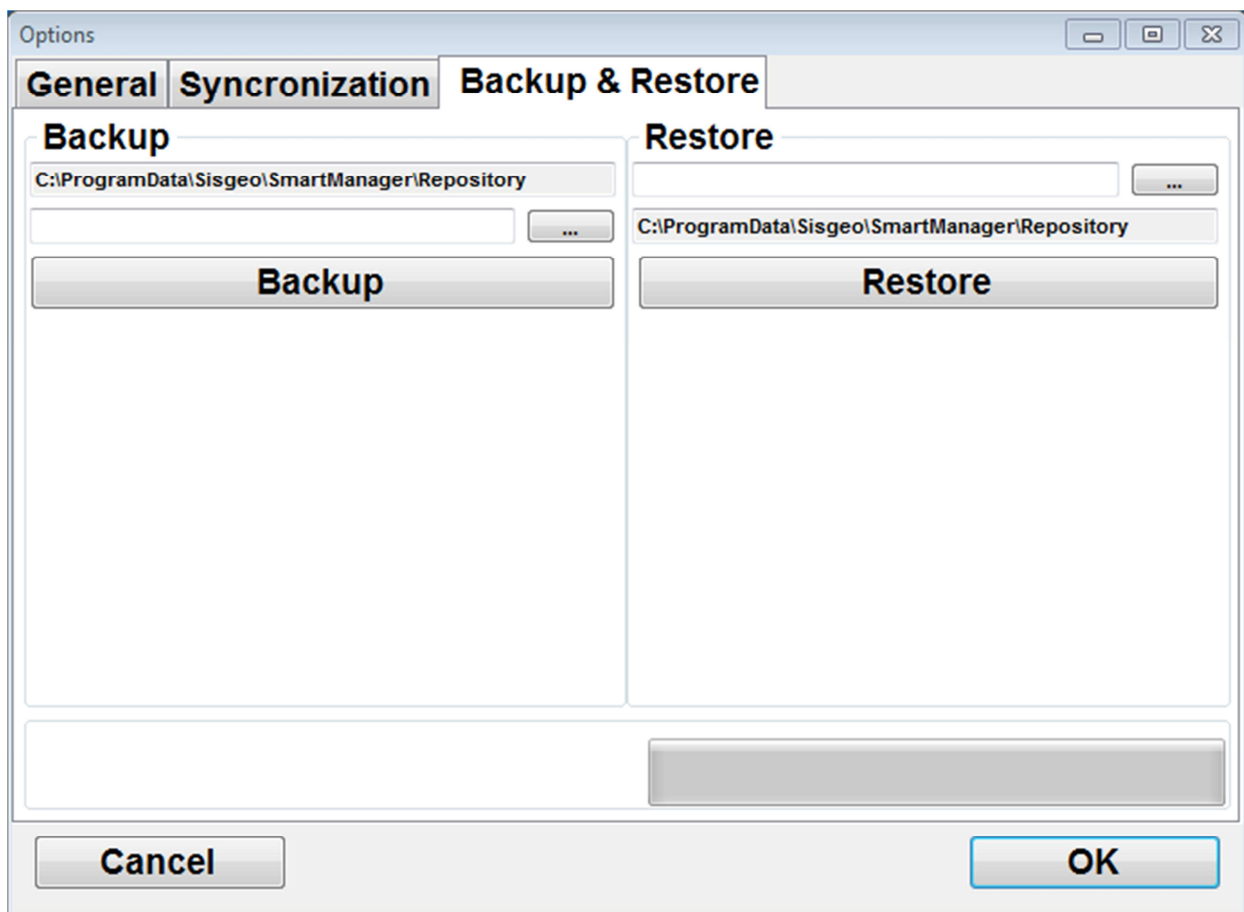


After the change, restart program to apply.

Synchronization options let you change how the synchronization process takes place. For each group of objects it is possible to establish the default action to execute during synchronization.



Backup & Restore options are designed to make a backup or recovery from a backup copy of DL data present in the PC archive (Repository).



For the Backup process it is required to select the destination folder for the compressed copy of data.

For the Restore process, select the compressed file with data to be restored.



Restoring data will overwrite any data in the archive.

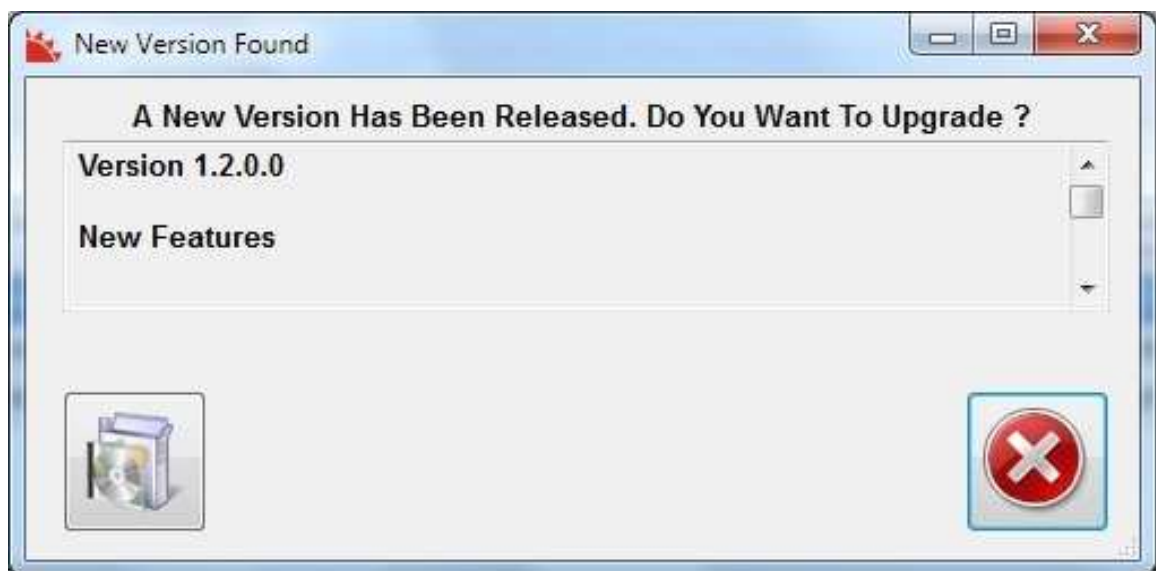
SOFTWARE UPDATE

SmartManager regularly checks Internet for updates.

If any update is found, a dialog box will be displayed asking to download and install the new software.



To complete software upgrade you have to close the SmartMonitor program running in your tray bar.



The update process can take a long time.

First the installation files are downloaded from internet to your PC, then they are uncompressed and the installation process starts.

Before to install the new version, will be requested to remove the previous version of program.



You have to close SmartMonitor Program located in your tray bar.

If you have no Internet access, you can obtain software updates directly from SISGEO Assistance.



SmartManager checks for new software update every 7 Days from the last inspection. To force Software update check Start SmartManager keeping pressed "SHIFT" key

Updating software will not delete any stored Datalogger data.

Data is stored in a general document directory, this directory may change according to Operative System and language installed.

On Windows XP it is located in

"C:\Documents and Settings\All Users\Application Data\Sisgeo\SmartManager\Repository"

On Windows Vista/Seven it is located in

"C:\ProgramData\Sisgeo\SmartManager\Repository"

To find easily this directory search your hard disk for "SmartManagerOptions.xml" file

For Dataloggers and data backup, make a copy of this directory.

FIRMWARE UPDATE

The firmware is the program that internally controls each DL.

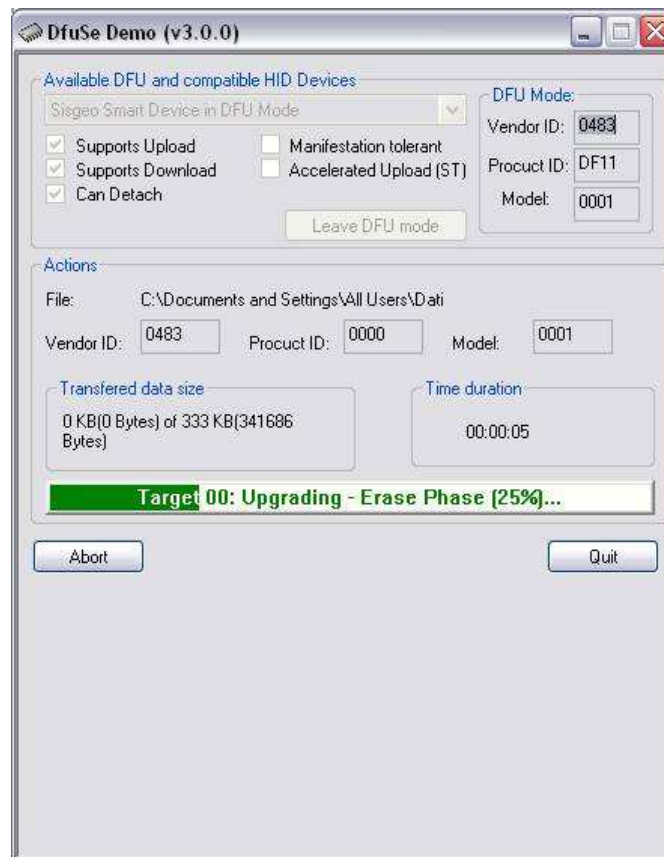
SmartManager will check every time you connect a DL if a newer version of the firmware is available; in that case it will request to execute a firmware update.

The comparison between the DL firmware versions and the PC version is done at each connection. The comparison between the DL firmware versions and the Network version is done every 7 days to the last check.

New firmware are automatically downloaded during the software update process and they can also be obtained directly from SISGEO.



To update the firmware you need to switch off the DL, and switch it on again pressing the keys shown (1, 3, 9, enter and ON/off key). When the DL-shows a blue screen, press the "UPGRADE" button on the PC screen to start the process.



At the first update, the PC will ask you for drivers.

Once ended the firmware upgrade process, close SmartManager program, switch off DL and switch it on again to complete the process.



TROUBLESHOOTING

<i>Problem</i>	<i>Cause</i>	<i>Recommended action</i>
The program does not install or gives error messages during installation	User account with limited privileges	Ask your system's administrator and remake the installation with administrator privileges
	The PC does not support software installation	Verify that the PC has the minimum requirements (see Smart Manager Manual)
	The supplied CD has been damaged	Test the CD on another CD-ROM reader
The DL is not recognized from the PC	The USB connection could be wrong	Check that the USB cable is inserted well both in the PC and in the DL port
	USB drivers do not start correctly	Disconnect and connect the DL. Eventually, restart the PC.
The synchronization between DL and PC is not correct	Software does not recognize the DL	Check that the DL is turned on, connected and that the USB communication function has been activated (for the procedure see DL manual)
	The software points to an incorrect path, probably because of a manual setup on a different path	Try to synchronize a second time; start the Start Manager and select through "Open" the letter associated to the DL
Connecting the DL the Smart Manager software starts twice	At the first connection of a new DL, the driver's automatic installation can cause the double start of the software	Close the open windows and restart the communication procedure.
The synchronization is slow	Too many elements have been set up on the DL	SISGEO recommends to synchronize periodically DL and PC, instead to make a single full synchronization

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2. all the rights, title, and interest in this product are and shall remain Sisgeo' s, including intellectual property rights.

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The customer may install and use a single copy of this product on a single workstation, exclusively for the customer's own internal personnel. Conditions of installation permitting the sharing of the product by multiple workstations must be approved by Sisgeo. The customer agrees to make A SINGLE COPY of the product file for the purposes of backup. The text of the product may not be modified, translated, adapted, or redacted. The only version of the text which has valid standing is that preserved in Sisgeo' s archive. PARTIAL reproduction of the product is authorized only on documents for the exclusive internal use of the customer. It is prohibited to give the product, in license or in fact, to resell it, distribute it, or cede it in any respect in any of its parts, whether in the original or a copy.

UPDATES TO THE PRODUCT

The product purchased is the version in force at the moment of sale. The product is updated when necessary with the publication of new editions or updates. Sisgeo is not obligated to advise the customer of publications of variants, corrected errors, or new editions which modify, update, or entirely replace the product; it is therefore important for the customer to ascertain that he or she is in possession of the latest edition and any updates.

RESPONSIBILITY

Neither Sisgeo nor any of its managers, employees, or distributors can be considered responsible for any eventuality which may derive, result, or be in any way related to the possession or use of the product on the part of the customer. Such responsibility shall remain with the customer.

LEGAL PROTECTION

The customer agrees to provide Sisgeo with all information necessary to guarantee the full respect of the terms of this agreement on the part of third parties. In case the actions of third parties place in doubt the observance of the terms of this agreement, the customer undertakes cooperation with Sisgeo to guarantee observance. Sisgeo reserves the right to take any legal action whatsoever towards the customer to safeguard its own rights in any jurisdiction in which a violation of this agreement has taken place. The agreement is subject to law in force in Italy and the competent court for any controversy shall be that of Milan.